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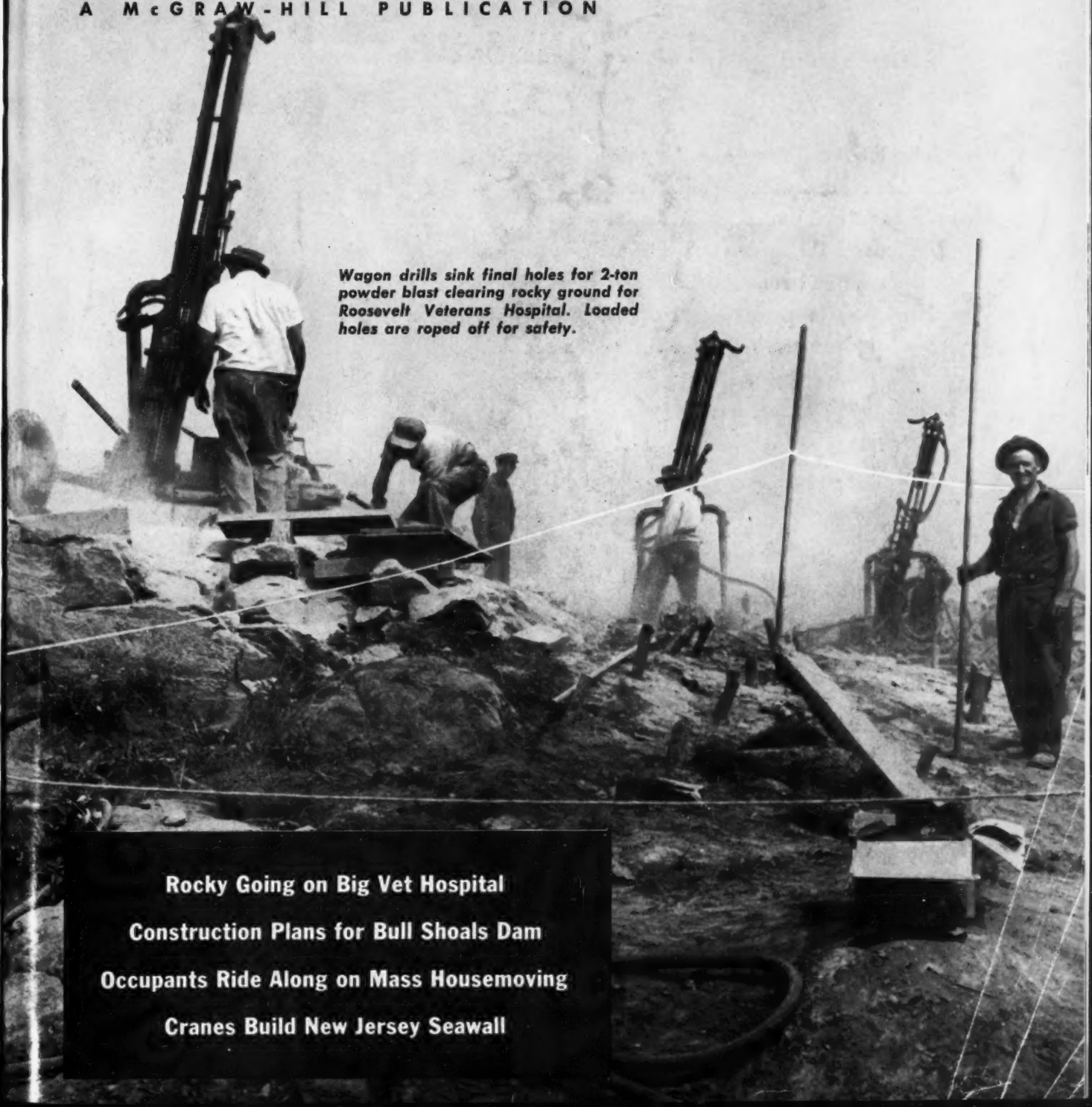

Wagon drills sink final holes for 2-ton powder blast clearing rocky ground for Roosevelt Veterans Hospital. Loaded holes are roped off for safety.

Rocky Going on Big Vet Hospital

Construction Plans for Bull Shoals Dam

Occupants Ride Along on Mass Housemoving

Cranes Build New Jersey Seawall

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Construction Methods

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THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

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Volume 30 **MAY 1948** Number 5

CUTS AND FILLS

SPRING IS HERE, and with it comes a new flock of engineering graduates looking for jobs. Some of these boys, interested in construction, will be calling on or writing to contractors. Regardless of whether you have a job open at the moment, give these fellows a sympathetic hearing, a respectful answer and some sound advice. They are the new blood of contracting, and deserve dignified attention instead of the freezing brush-off they so often receive.

IT MIGHT BE a good idea for every A.G.C. branch and chapter and every A.R.B.A. contractor group to set up a central clearing house through association offices for handling technical employment. Young graduates usually don't know where to apply for construction jobs, and likewise contractors needing engineer personnel don't know where to look. If local contractor associations would canvas their membership for job vacancies and then notify engineering schools in their vicinity that the office would serve as an employment clearing house, all parties concerned would benefit.

INCIDENTALLY, one excellent way to build up a construction technical and supervisory force is to hire undergraduate engineering students for summer work. These chaps, after close contact with practical operations, become enthusiastic about construction, get more out of their subsequent schooling, and upon graduation are much better candidates for a construction career than students lacking even brief actual experience.

HONEST difference of opinion resulted in a spread of $8,300,000 on two bids submitted by large groups of equally competent and experienced contractors for Hungry Horse Dam in Montana. While the $43,431,000 low bid of General-Shea-Morrison was only 16 percent under the only other proposal, it must be quite a jolt to leave more than 8 million bucks on the table. Though the other group, Allied Dam Contractors, Inc., worked up ten independent bids, all exceeding 50 million dollars in reaching their final proposal of $51,729,000, one of their representatives remarked: "That other group are no dumbbells, they know what they are doing." The answer is simple. Bidding a 5½-year contract for a 3-million-yard dam in a remote region subject to short working seasons goes beyond calculated risk into the realm of gambling.

SELECTION of Harvard professor John T. Dunlop as impartial chairman of the National Joint Board for settlement of jurisdictional disputes completes the machinery for handling one of construction's most vexing problems. If both construction management and labor are really sincere about ending these disputes, at long last they have the means to do so.

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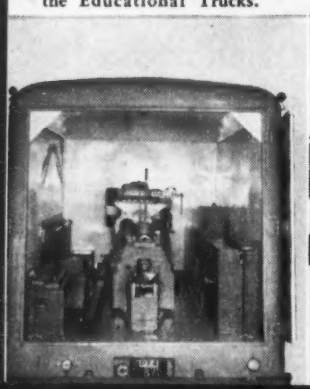
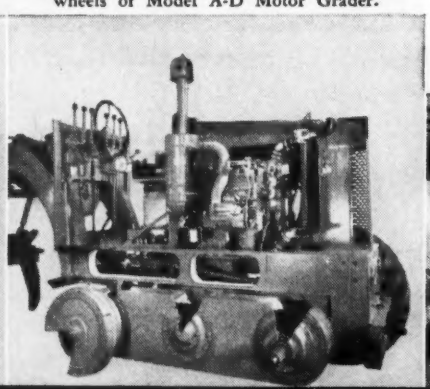
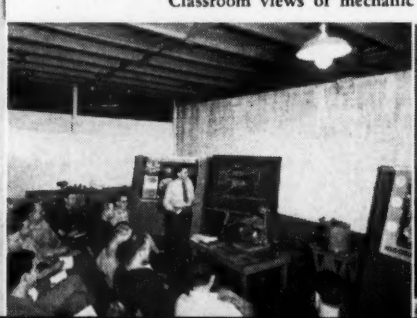
Interior view of one of the Educational Trucks.

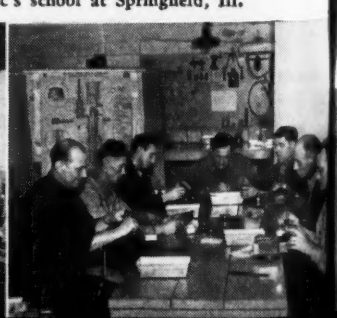


Cut-away of controls, engine and driving wheels of Model A-D Motor Grader.



Classroom views of mechanic's school at Springfield, Ill.





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JULY 16-24, 1948

THE JOB JESTER

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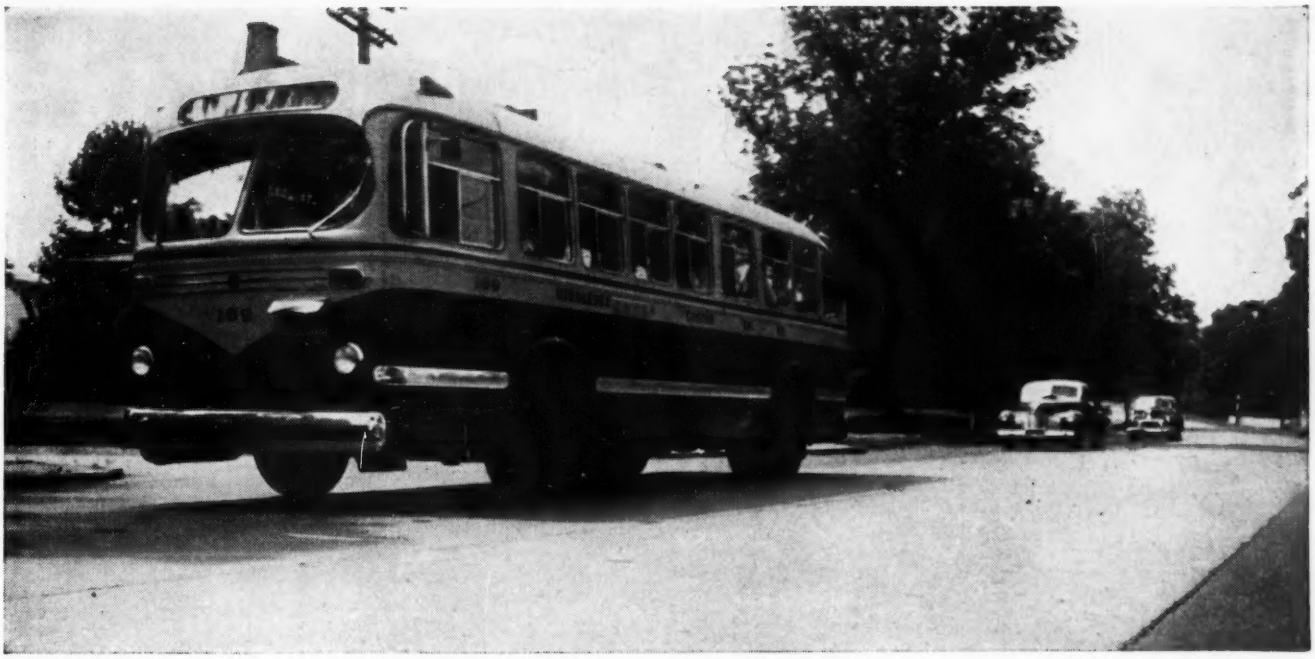
"Well, what's the latest dirt?"

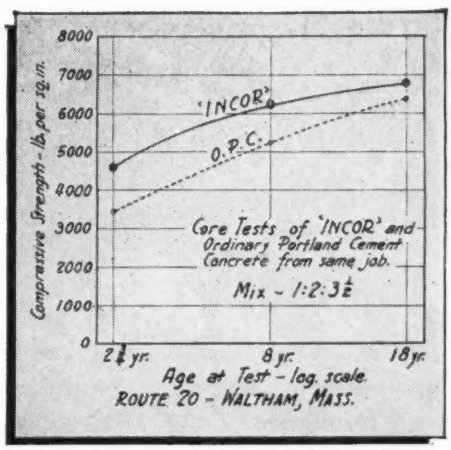
"We got to raise dough for this new county trunk somehow!"

"It'll make me late for supper but I gotta' stick around until quitting time and see him get out of this!"



20 Years on Main Street U.S.A.

DEPENDABLE 'INCOR' ULTIMATE STRENGTH, TOO



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LONE STAR AIR-ENTRAINING PORTLAND CEMENT
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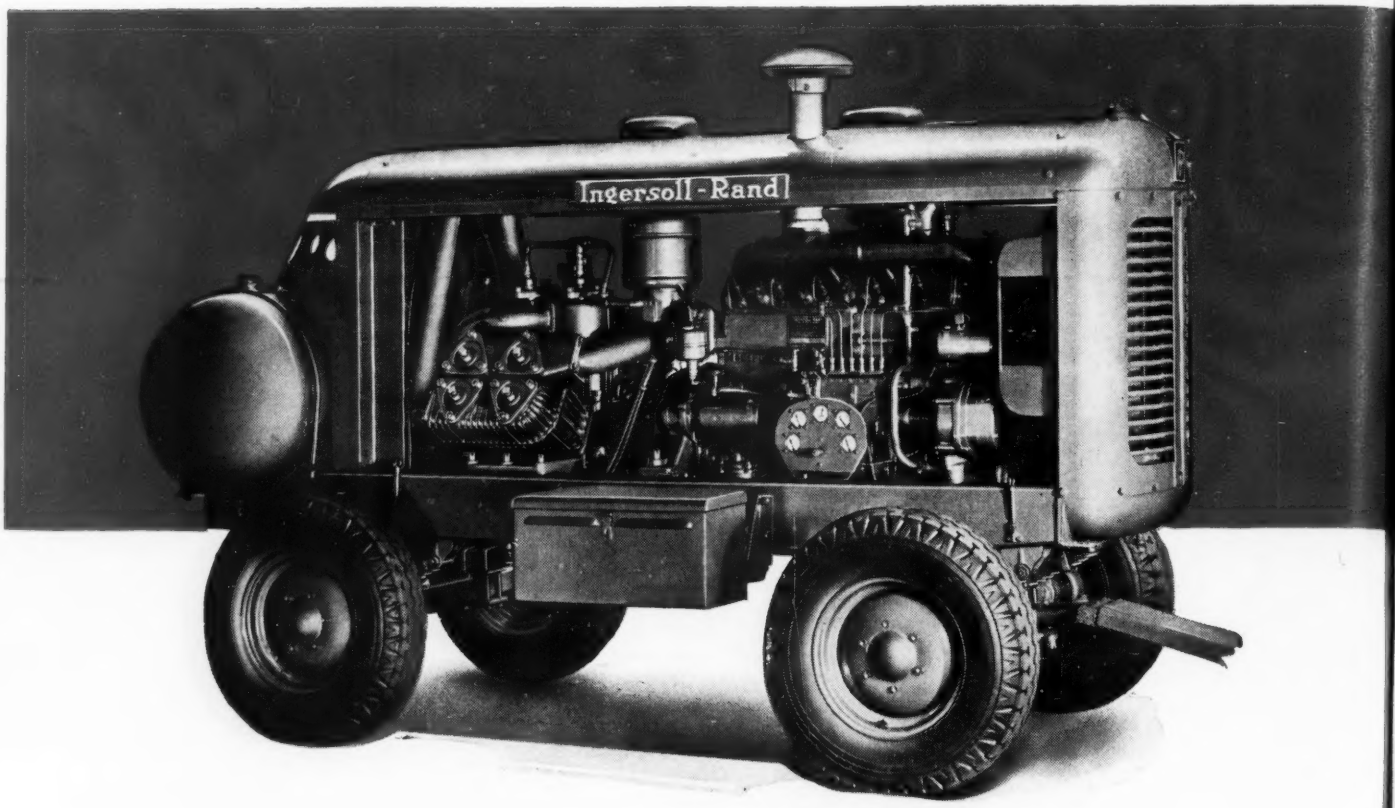

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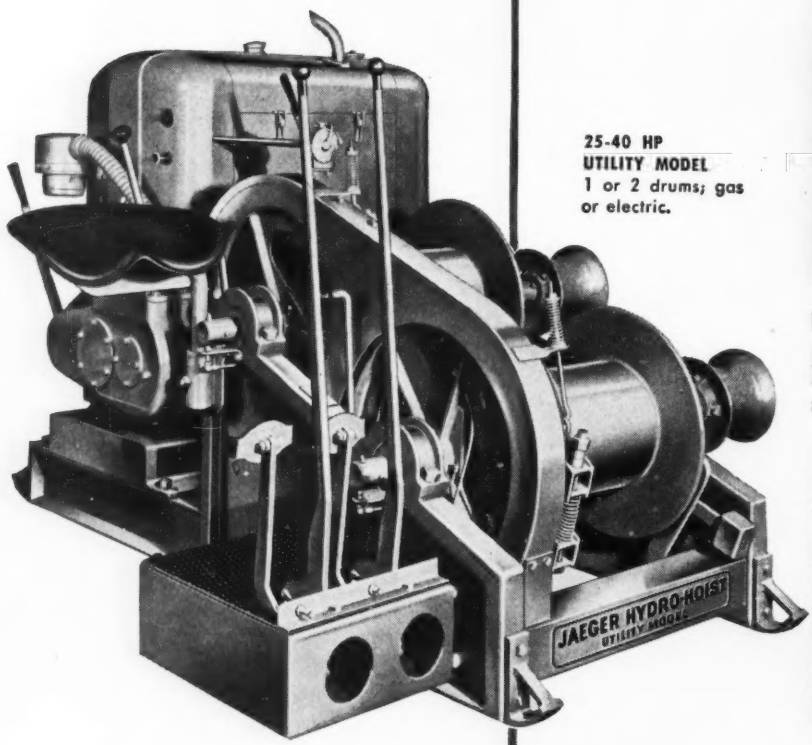

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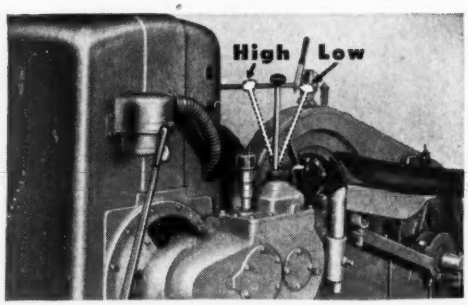
1 or 2 drums; gas or electric.



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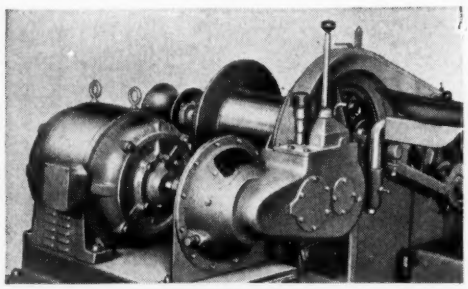

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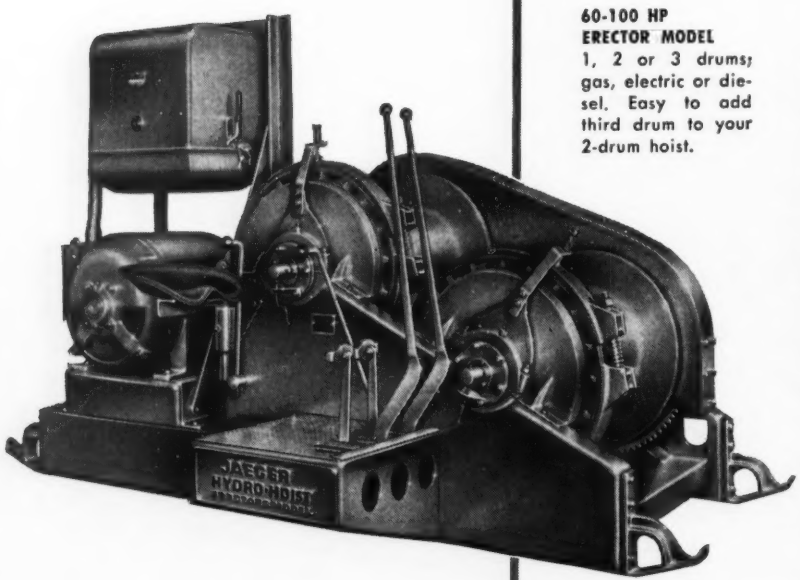

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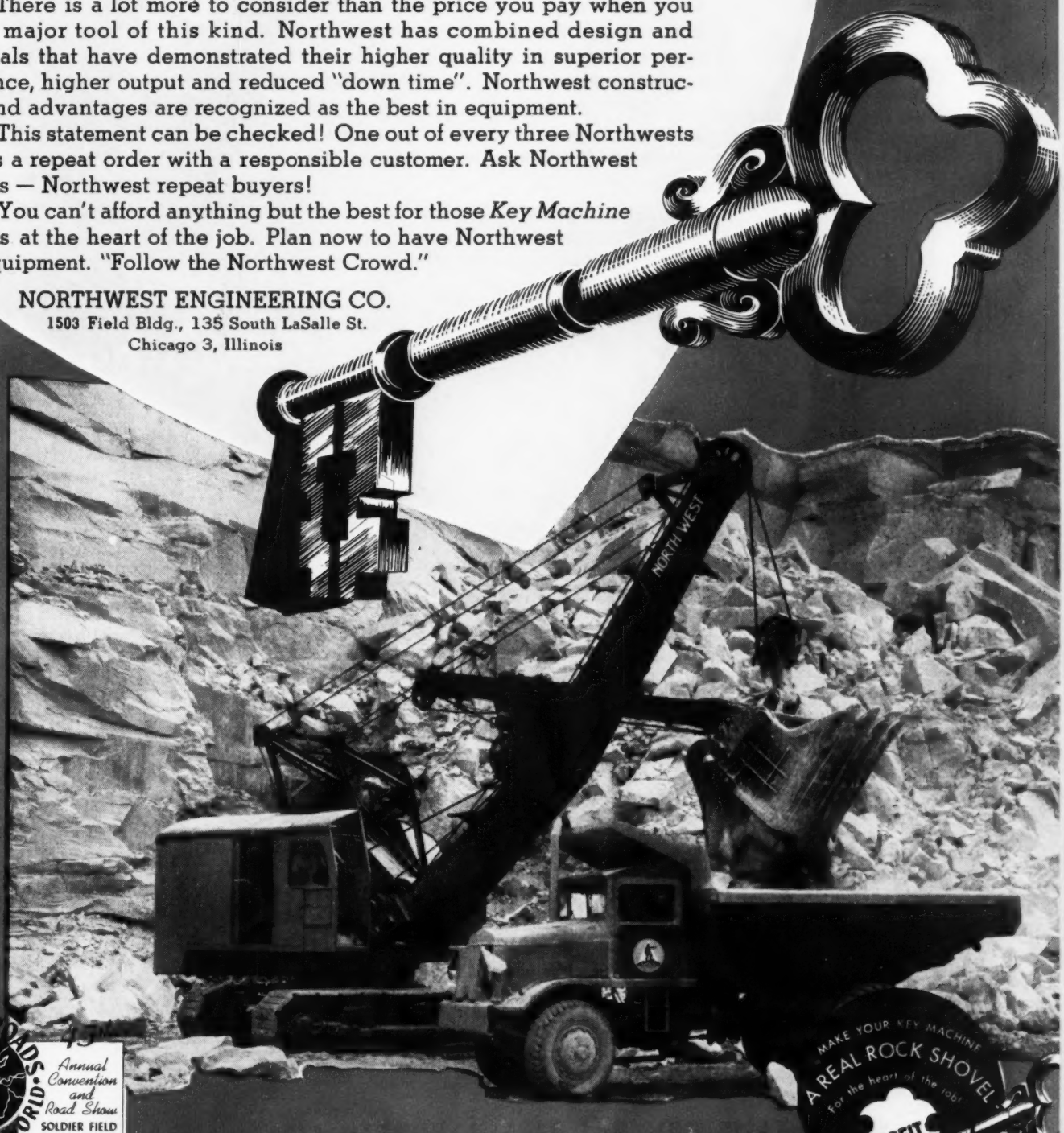

BETTER ROADS FOR A BETTER WORLD

Annual Convention and Road Show
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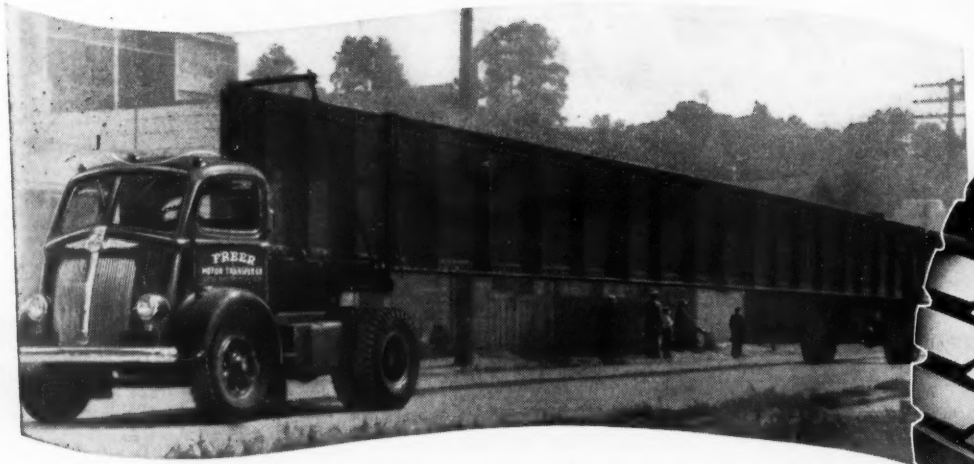
MAKE YOUR KEY MACHINE A REAL ROCK SHOVEL
For the heart of the job!
PROFIT

NORTHWEST



Putting a load like this on the General L. C. M. is *good* business. For this tire is the "strong man" of the industry. In one operation after another it has proved its ability to move tremendous loads over soft or hard surfaces without breaking down or getting clogged up. The extremely thick, tough tread cushions the tire against cuts and snags . . . protects the carcass from hazards common to construction work. With every turn of the wheel on a tough job this longer wearing, harder working, stronger tire saves you money.

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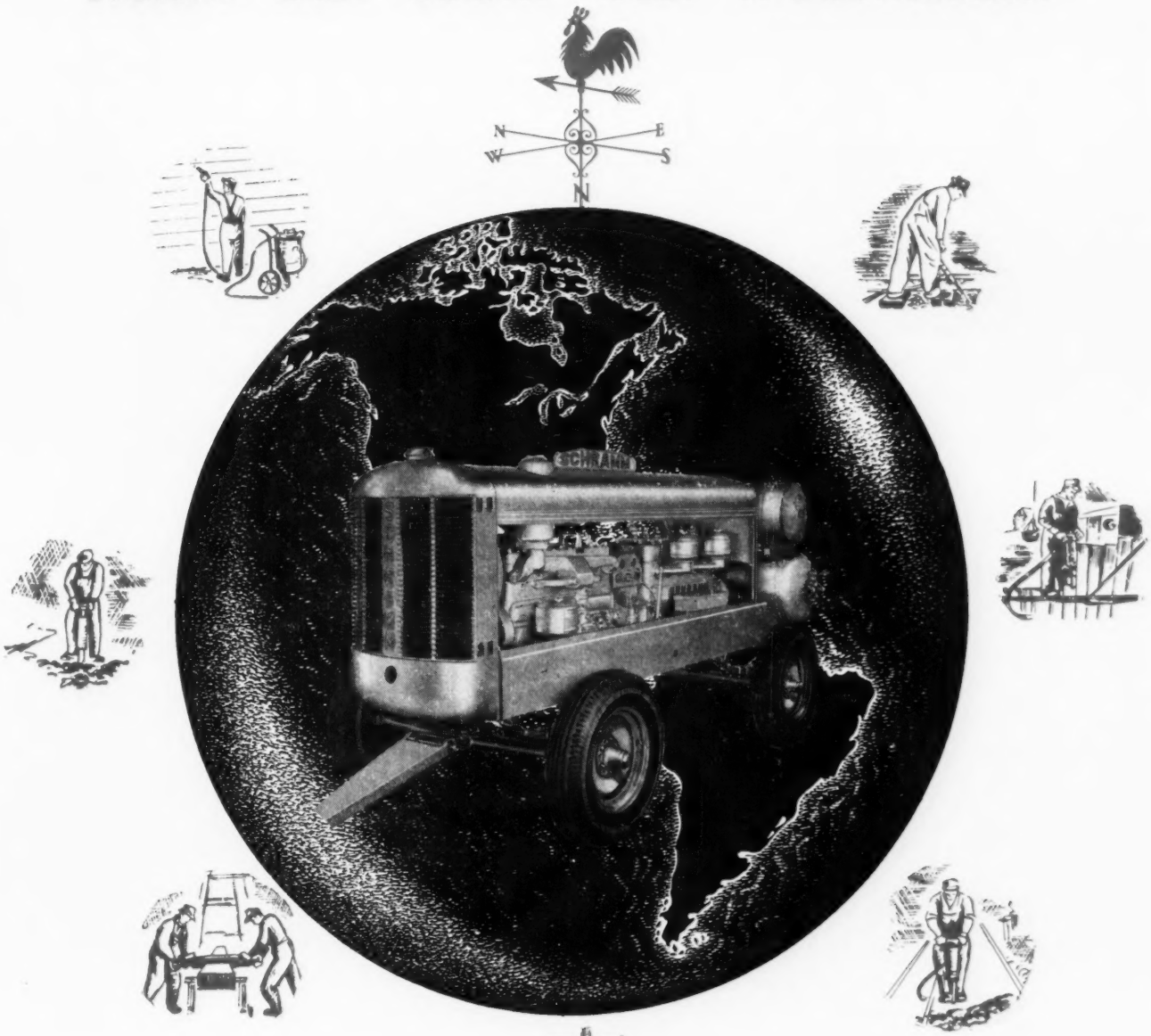

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Concrete Breaking	Driving Sheet Pile	Sand Blasting	Timber Sawing
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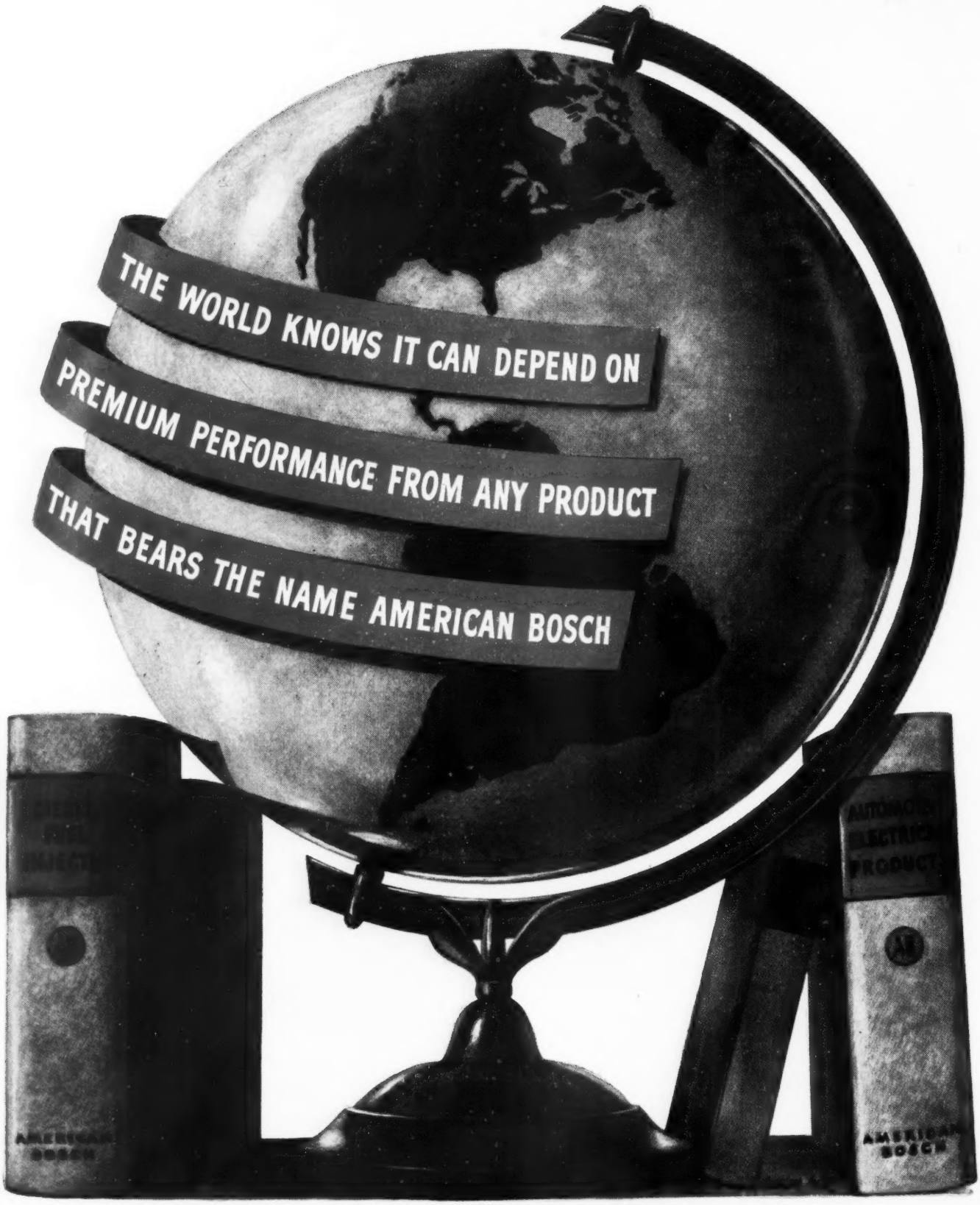
POWER CONTROL UNITS

TRAILBUILDERS


THE WORLD KNOWS IT CAN DEPEND ON
PREMIUM PERFORMANCE FROM ANY PRODUCT
THAT BEARS THE NAME AMERICAN BOSCH
AUTOMOTIVE ELECTRICAL PRODUCTS
AMERICAN BOSCH
AMERICAN BOSCH

American Bosch

Factory in Springfield, Massachusetts • Service the Whole World Over

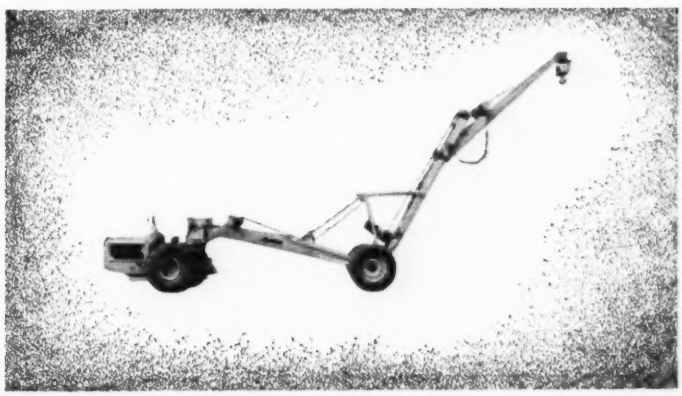
New Distributor Opportunity

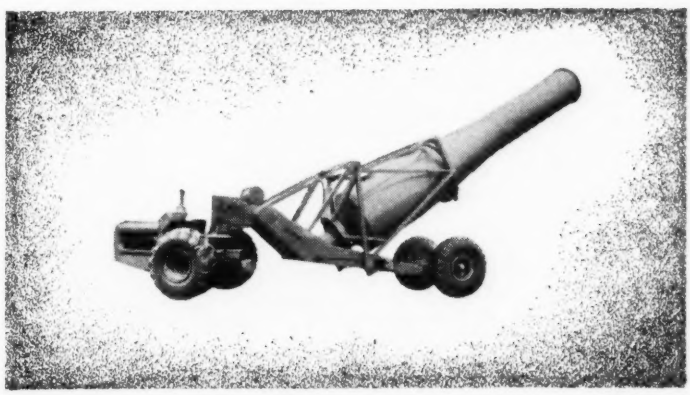
MARKET LeTOURNEAU'S NEW PRODUCTS

Specialized Distributors Wanted — Handle all or part of our new diversified line of material handling and heavy construction equipment. Can your organization handle these or similar products?

TOURNACRANES*

Mobile, electrically-operated cranes built to solve industry's need for a fast, high-capacity lift-and-carry tool — one operating efficiently on or off roads.



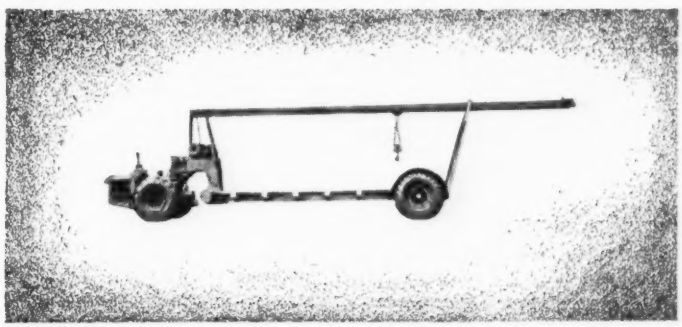


TOURNAMIXERS*

Large capacity electrically-operated transit mixers designed for easily-controlled, direct concrete placement at various levels.

TOURNAHAULERS*

Self-powered, electrically controlled hauling units developed to handle all types of on or off road transporting — with optional accessories such as winches, jib cranes and overhead trolleys — capacities up to 100 tons.



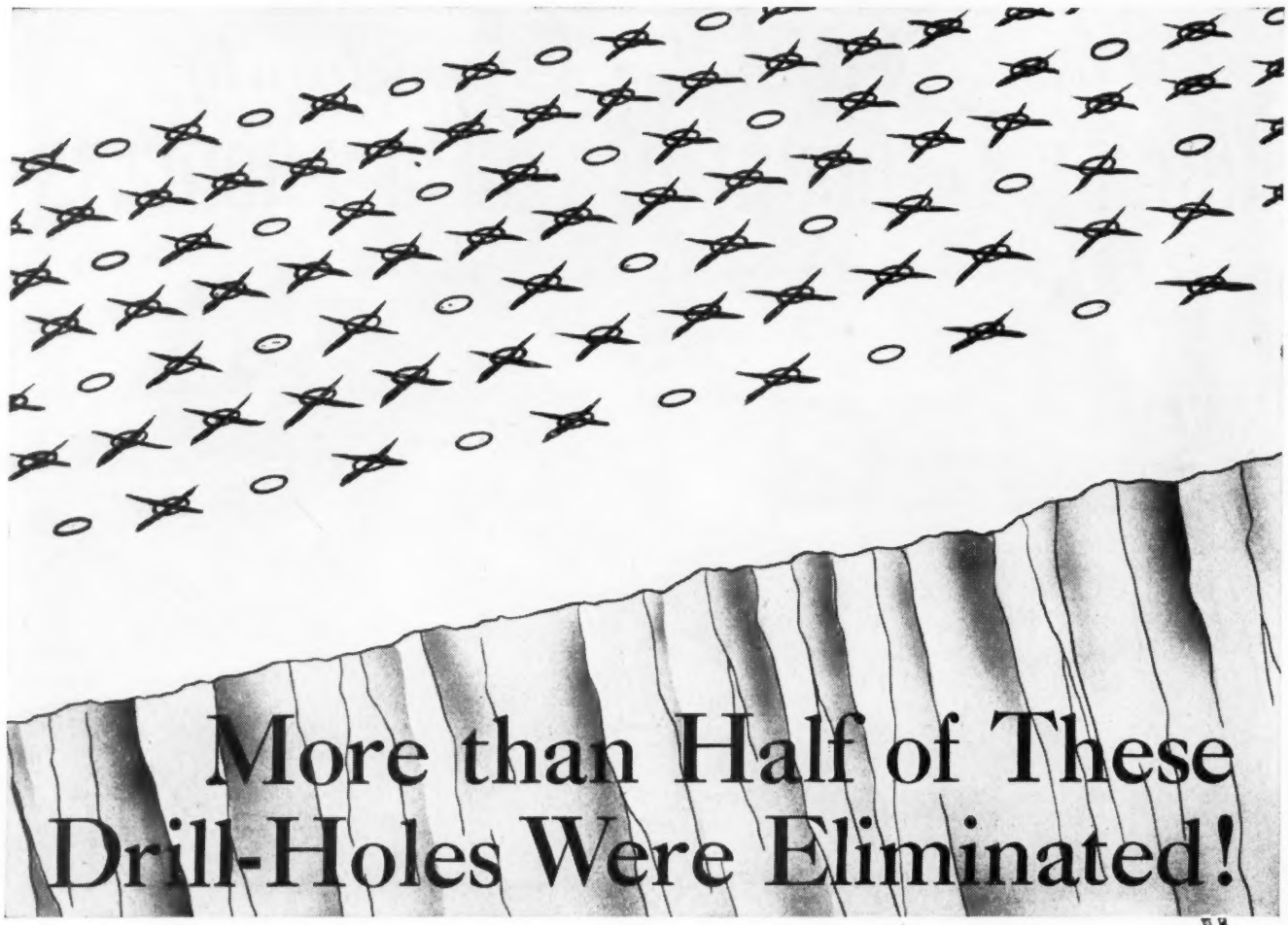
We need specialists to handle these new high-speed, off-road machines. If your firm is qualified and capable of handling any or all of these products — write today. Direct all inquiries to:

Note: LeTourneau will continue to market its earthmoving products through its established earthmoving distributors.

R.G. LeTOURNEAU INC *Tournalayer Division*

Department 101 **Longview, Texas**

*Trademark Reg. U. S. Pat. Off.



More than Half of These Drill-Holes Were Eliminated!

This story will sound almost unbelievable to many quarry, construction and mining men accustomed to ordinary methods of blasting.

A reduction of over 50% in drilling costs and dynamite costs! That's the experience of a well-known Tennessee limestone quarry—due to using the original Rockmaster Blasting System developed by Atlas.

This quarry had made a practice of spacing drill holes on 4-foot centers. Hundreds of holes had been drilled in advance for seven-row shots. When the Rockmaster system was introduced, our representative recommended loading only every other hole and every second row. His suggestion was adopted, as shown in the diagram. Over 70% of the holes already drilled were left unloaded!

Results were astounding. Breakage was *exceptionally good*, better than had ever been obtained before! Future plans call for drilling holes on 8-foot centers (or even greater.)

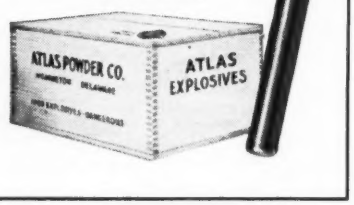
Of course, results vary according to the problems of the job. But this is no isolated case of economy. Hundreds of engineers are praising the Rockmaster system for greatly increased fragmentation of burden, for increasing production and cutting costs. At the same time, Rockmaster cuts down on objectionable noise and vibration in many instances.

The Rockmaster system is based on millisecond delays between holes, accurately controlled by Rockmaster electric detonators. Explosives and methods of loading are a part of the system, so that each shot is tailor-made to suit requirements.

Call in the Atlas representative and ask him what Rockmaster can do for *you*.

ROCKMASTER GIVES YOU THE GREATER SAFETY OF MANASITE DETONATORS

Less Bark . . .
More Bite



Manasite: Reg. U.S. Pat. Off. "ROCKMASTER"—Trade Mark

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • ***Offices in principal cities*** • ***Cable Address—Atpowco***

TEMPOTOOL PAVES THE WAY...

for the exciting *New TUCKER!*

Tucker

March 8, 1948

Tempo Products Company
1900 Euclid Avenue
Cleveland, Ohio

Attention: Mr. John G. Ellis, Manager of Sales

Dear Mr. Ellis:

In remodeling the Dodge-Chicago plant, which we recently acquired for the production of the new Tucker automobile, we were faced with the staggering task of installing close to 26 miles of chain-drag floor level conveyors. This meant that two anchor bolts had to be secured to a concrete floor every four feet for this distance.

Your new Model "38" Tempotool was brought to our attention and shortly thereafter was placed into use. To date, a two-man crew has set many thousands of the concrete drive pin No. 1803 directly through 1/4-inch anchor plate at a saving in cost of 50 percent over conventional methods.

Additionally, the use of Tempotool has resulted in a reduction of at least 75 per cent in the estimated time which otherwise would have been required to install our conveyor system.

The Tempotool has been of immeasurable help in our pre-production tooling program and we are happy to express our enthusiasm for it.

Very truly yours,

TUCKER CORPORATION

Preston Tucker
President

PT:j

PATS. PEND.

● The production line for the brilliant new TUCKER automobile winds for almost twenty-six miles through their huge Chicago plant. A chain-drag conveyor had to be installed for this entire distance—anchored to the concrete floor every four feet. Faced with this stupendous task, TUCKER turned to the TEMPOTOOL method of fastening.

Using the "Model 38" and a two-man crew, they anchored 1/4-inch steel cross plates directly to the concrete flooring with standard drive pins.

The company estimates that they saved *75 per cent* in time over conventional methods—and did the job for *half* the usual cost.

This is only one of many dramatic examples where TEMPOTOOL is saving time and money for users *every day*. For fast fastening—investigate TEMPOTOOL!

INVESTIGATE! SEND FOR THE NEW TEMPOTOOL BROCHURE *NOW!*

SOLD NATIONALLY THROUGH RECOGNIZED DISTRIBUTORS

Tempotool Model "22" with Safety Shield

Tempotool Model "38" with Safety Shield

Distributed Nationally by

THE TEMPO PRODUCTS COMPANY

Dept. 300 • 1900 Euclid Avenue • Cleveland 15, Ohio

Manufactured by

STEMCO CORPORATION • Rocky River, Ohio

FASTENS STEEL TO STEEL
FASTENS STEEL TO CONCRETE

like that!

DIGGING IN *or* DIGGING OUT

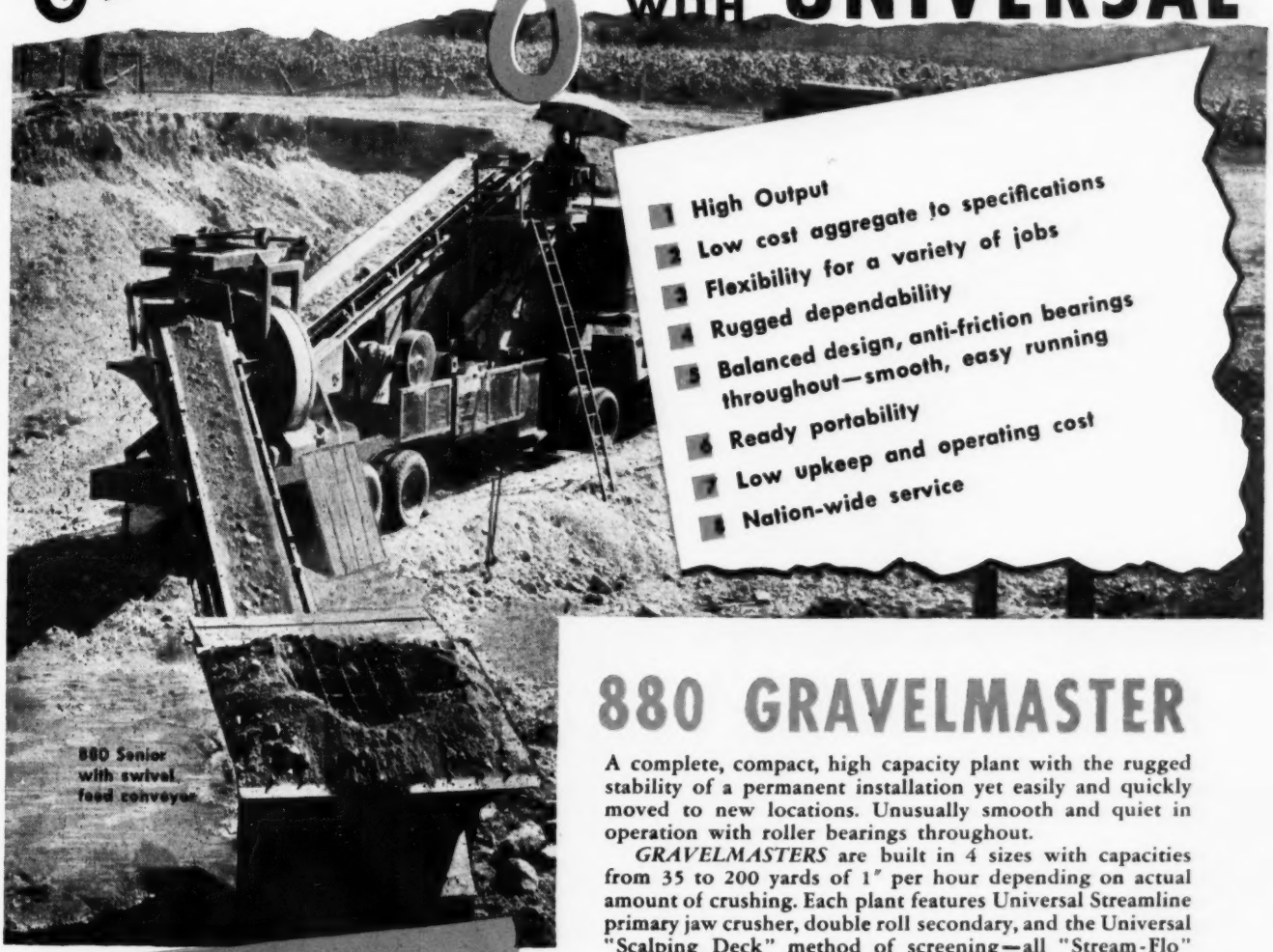
You'll Dig Better with TRAXCAVATORS!

YOU never saw anything like TRAXCAVATORS for digging out heavy debris or hard virgin soils. Their direct digging action gets big full bucket loads every time. They make yardage volume go up and handling costs come down.

TRAXCAVATORS are big, powerful tractor-excavators powered by famous sure-footed "Caterpillar" track-type tractors. They are contractors' most versatile tools. They dig, grade, load, carry, haul, lift, spread and bulldoze with equal ease — and they do it cheaper and faster than any other machines of comparable size and capacity.

There's a size of TRAXCAVATOR for every job and purpose . . . with bucket capacities ranging from ½ to 4 cubic yards. For detailed information on how TRAXCAVATORS can help you — see your friendly TRACKSON "Caterpillar" dealer or write to the TRACKSON COMPANY, Dept. CM-58, Milwaukee 1, Wisconsin.

GET THESE 8 BIG ADVANTAGES WITH UNIVERSAL



1. High Output
2. Low cost aggregate to specifications
3. Flexibility for a variety of jobs
4. Rugged dependability
5. Balanced design, anti-friction bearings throughout—smooth, easy running
6. Ready portability
7. Low upkeep and operating cost
8. Nation-wide service

880 Senior with swivel feed conveyor

880 GRAVELMASTER

A complete, compact, high capacity plant with the rugged stability of a permanent installation yet easily and quickly moved to new locations. Unusually smooth and quiet in operation with roller bearings throughout.

GRAVELMASTERS are built in 4 sizes with capacities from 35 to 200 yards of 1″ per hour depending on actual amount of crushing. Each plant features Universal Streamline primary jaw crusher, double roll secondary, and the Universal "Scalping Deck" method of screening—all "Stream-Flo" engineered to assure high capacity with low operating and maintenance costs. Highly flexible, Universal *GRAVELMASTERS* are used as complete gravel crushing, screening, and loading plants or to step up production as secondaries following a primary in either pit or quarry operations.

WRITE FOR BULLETIN No. 39AB

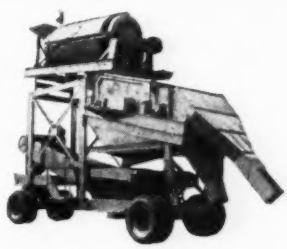
FOR PRODUCTION AT A COST THAT LEAVES MORE PROFIT

Universal "Stream-Flo" Engineering provides the perfect balance of high capacity units to assure steady flow of properly graded material. No starving, no glutting . . . results in more yards per hour at less cost per yard.

Let Universal Engineers recommend the equipment best suited to your crushing, screening, washing, and loading requirements.

WRITE OR WIRE TODAY

PORTABLE WASHING PLANT



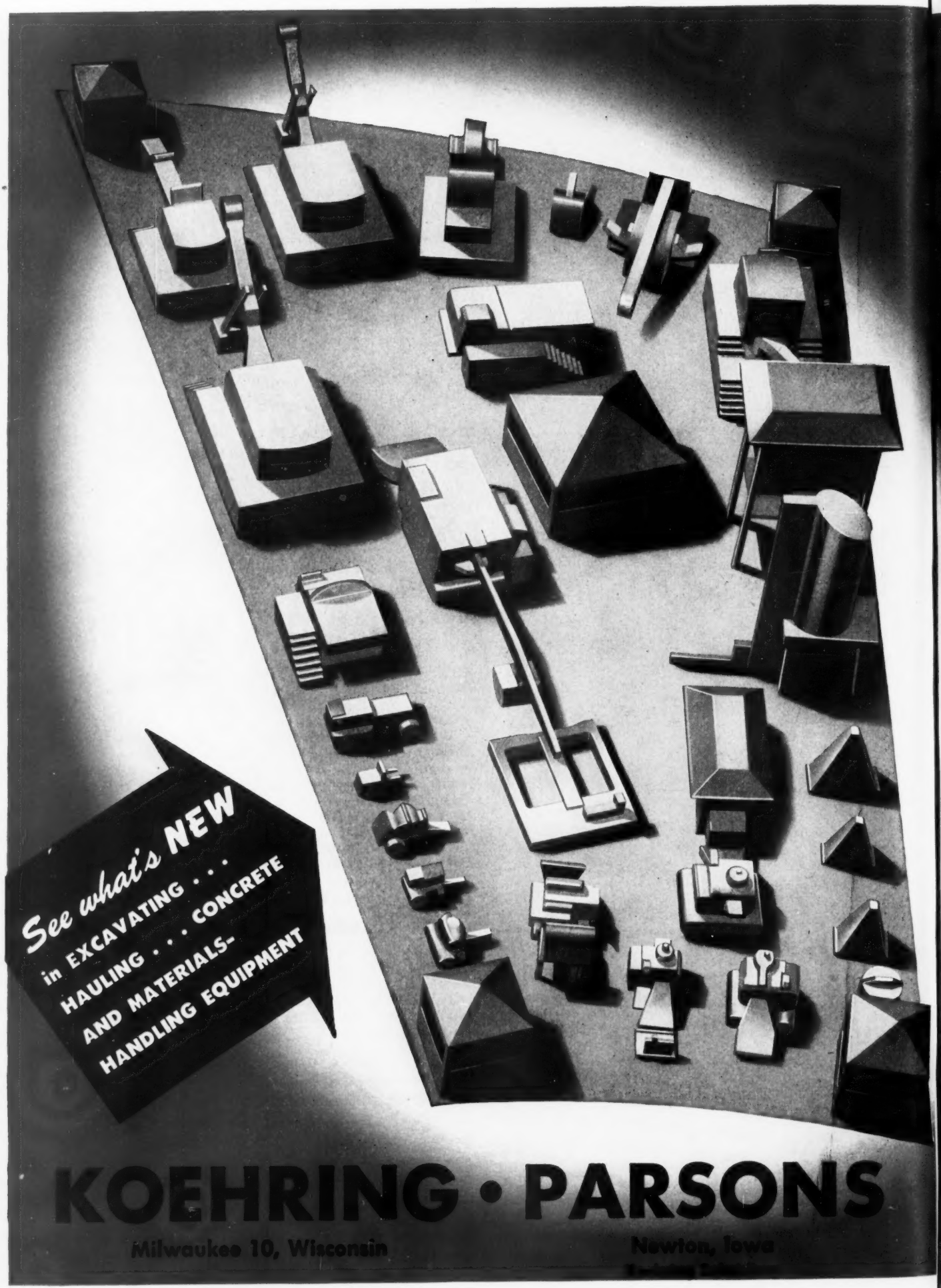
• *An ideal auxiliary for the* GRAVELMASTER. *Produces washed gravel in 2, 3, or 4 sizes. Consists of revolving scrubber, Eagle single screw washer with flared tub, double deck gyrating screen with ball tray, power, and all chutes and water connections. Mounted on pneumatic tired truck.*

You can produce Faster, Better, for Less . . . with UNIVERSAL

UNIVERSAL ENGINEERING CORPORATION

329 8th STREET, N. W. CEDAR RAPIDS, IOWA

DESIGNERS AND BUILDERS OF "STREAM-FLO" ROCK, GRAVEL, AND LIME PLANTS, SCREENING AND WASHING PLANTS—CONVEYORS—APRON FEEDERS


See what's NEW
in EXCAVATING . . .
HAULING . . . CONCRETE
AND MATERIALS-
HANDLING EQUIPMENT
KOEHRING • PARSONS
Milwaukee 10, Wisconsin
Newton, Iowa

Don't miss this big EQUIPMENT "FAIR"

YOU are due for a big surprise at the 1948 Koehring equipment fair. In one big round-up of excavating, hauling, concrete and materials-handling equipment, you are going to see accumulated postwar changes and cost-cutting improvements in more than 25 modern machines from the complete line of Koehring and subsidiary products. In the exhibit you are going to preview many completely new machines . . . revolutionary developments that will start you figuring for new lower costs and bigger profits.

It's an event you can't afford to miss!

KOEHRING PRODUCT

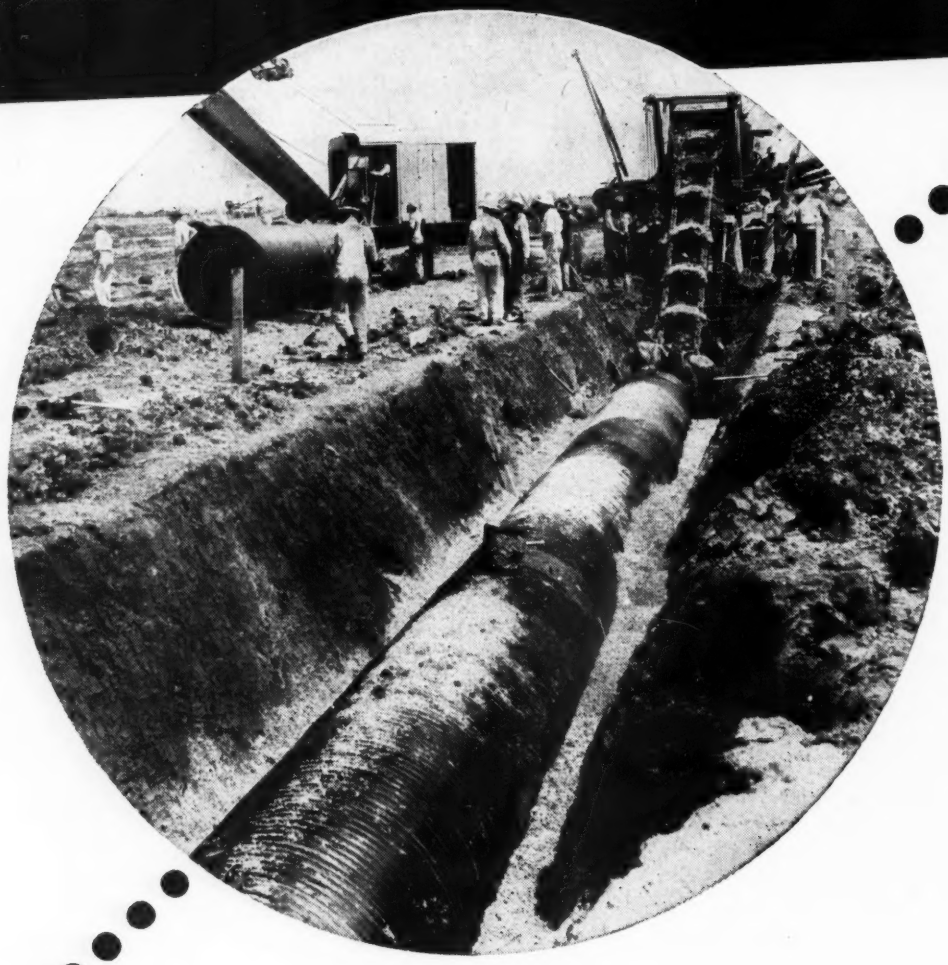
Time: July 16-24 *Place:* Soldier Field, Chicago *Event:* 1948 Road Show
Exhibit Booth 3010

JOHNSON • KWIK-MIX

Champaign, Illinois
Koehring Subsidiary

Port Washington, Wisconsin
Koehring Subsidiary

Here's "Profit Insurance"



on those close bids

Low, competitive bidding seldom leaves much room for profits. But here is something that will help. You can speed the job —save time and money by using ARMCO Corrugated Metal Drainage Structures.

Flexible, corrugated metal design assures ample strength without excess weight. This means low handling and hauling costs. Job costs are low because unskilled labor quickly and easily makes the installation. There is no breakage, no curing, no waste, no delay.

On highways, for example, traffic can roll as soon as backfilling is completed. Time spent in maintaining detours is lessened. No expensive equipment is required for installation. A few men with a rope sling or a small tripod can handle the largest structures. Individual lengths of standard pipe and PIPE-ARCH are supplied in any length that can be hauled and handled. They are joined by simple band couplers. Prefabricated end-sections are simple and easy to install. On larger MULTI-PLATE structures individual plates are pre-curved and delivered to the job site ready for immediate assembly.

Use ARMCO Drainage Products on highways, railways, airports, under city streets or wherever else you need efficient, economical drainage. You'll increase profits and cut costs. Write for complete information. Armco Drainage & Metal Products, Inc., 2365 Curtis Street, Middletown, Ohio.

ARMCO

ARMCO DRAINAGE PRODUCTS

Export: The Armco International Corporation.

M-B MAINTAINER

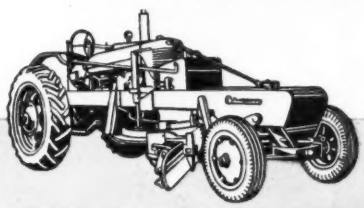
MORE PERFORMANCE—MORE EFFICIENCY—MORE CAPACITY

Your M-B Maintainer is designed to give you a greater variety of services at lowest possible cost. Increased maneuverability enables the machine to perform all types of earth moving and maintenance jobs with speed and efficiency. A mounting plate is provided for special equipment such as power sweepers, snow plows and bulldozers. Meili-Blumberg Corp. is in a position to furnish this type of equipment. The M-B Model 30 Maintainer is powered by a sturdy 31 H.P. International engine. The operator has full vision and finger tip control of maintainer and attachments. Balanced construction assures maximum blade pressure at all five operating speeds.

Write for Bulletin No. 140 for additional information.

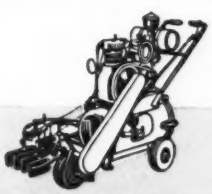
MANY USES!

- Road Maintenance
- Grading and Ditching
- Reshaping Surfaces
- Scarifying Hard Surfaces
- Sweeping Streets
- Snow Removal



M-B POWER GRADER

Designed for all types of grading and filling jobs. Hydraulic controls make it easy to operate. Used by state highway departments, counties, cities and industrial plants. Low operating and maintenance costs.

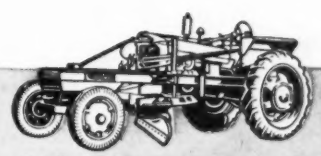


M-B MARKERS

Ideal for striping streets, parking areas, airports, playgrounds, industrial plants, etc. Rugged, compact construction. Hand or self-propelled models. M-B Markers are versatile to operate . . . have a large capacity . . . provide fast, low-cost striping.

M-B TRAILERS

Sturdily constructed with all-steel welded frames and Tilt-Bed platforms for easy loading. Designed for hauling various types of tractors with attachments, rollers, tampers, shovels, graders, ditchers, air compressors, etc. Sizes 2½ to 10 tons.



M-B MAINTAINER

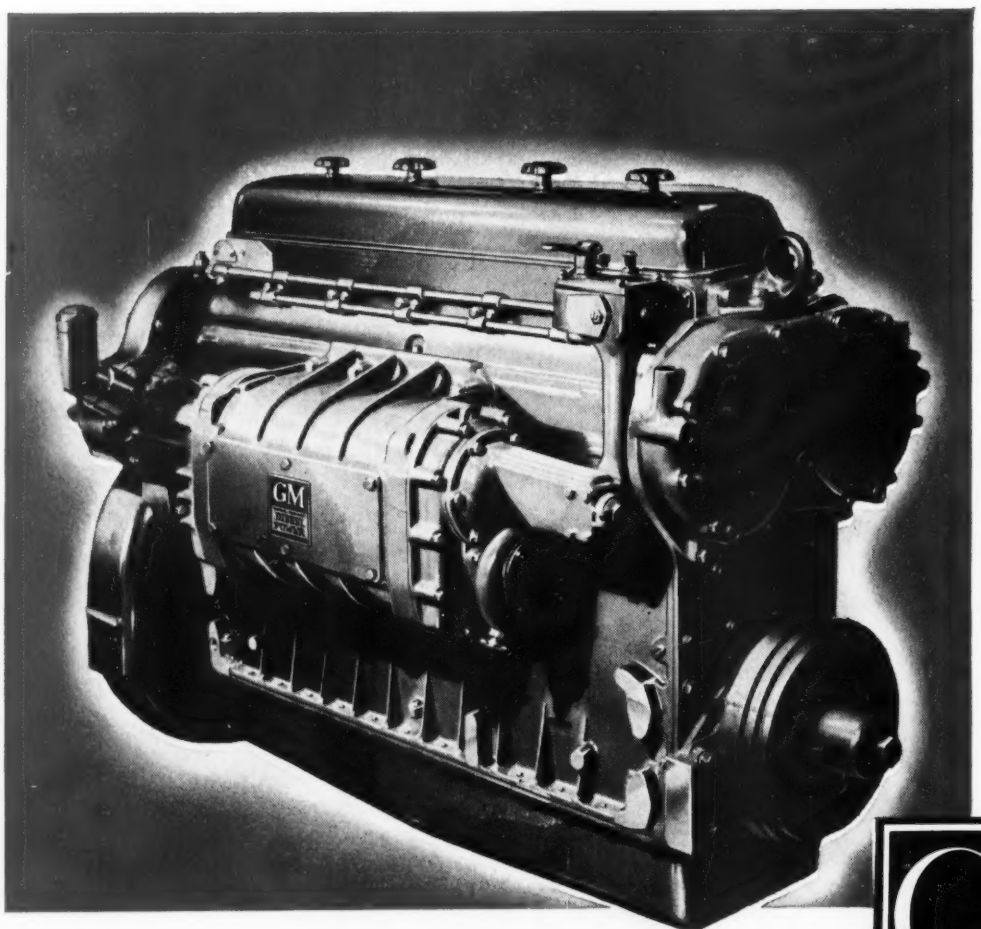
Lightweight Maintainer engineered for heavy duty maintenance work. For contractors, towns, cities and highway departments. Attachments such as cab, scarifier, power sweeper, snow plow, bulldozer blade, and leaning wheels, available.

MEILI-BLUMBERG *Corp.*

BOX 135 • NEW HOLSTEIN, WISCONSIN • U.S.A.

A 5352-1P-C

GREAT
FOR FINE



HELP AMERICA PRODUCE FOR PEACE
Turn in SCRAP from your Plant

Diesel Brawn Without the Bulk

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES.. *Up to 200 H.P.* **DETROIT 28, MICHIGAN** MULTIPLE UNITS.. *Up to 800 H.P.*

GENERAL MOTORS

GM
GENERAL MOTORS
DIESEL POWER

DIESELS EQUIPMENT

Today the list of manufacturers, who offer their contractors equipment powered with General Motors "71" Diesels, reads like a "Who's Who" of the industry. They know what these powerful, modern 2-cycle Diesels can do.

They know that these engines with all their power are compact and fit in available space—that they do their work easily and fast. Their 2-cycle operation makes them responsive and quick to pick up under load. They step up the work done by any kind of equipment.

GM Diesels have been designed for easy servicing. Pistons, liners, valves, and many other parts, are the same for every size Series 71 engine, so there is the maximum interchangeability of parts.

No wonder, then, that America's finest contractors' equipment is being furnished with the General Motors Series 71 Diesel engine.

LEADING MANUFACTURERS OF THE FOLLOWING EQUIPMENT OFFER GM SERIES 71 DIESEL ENGINES IN THEIR PRODUCTS:

Air Compressors
Arc Welders
Asphalt Plants
Buses
Cableways
Cranes
Distillation Equipment
Ditchers
Draglines
Dredges
Earthmoving Loaders
Evaporation Units
Feed Mills
Fire Pumps
Hoists
Industrial Locomotives
Locomotive Cranes
Logging Loaders
Logging Yarders
Mining Pumps
Motor Graders
Off-The-Road Vehicles
Oil Field Equipment
Pavers
Power Scrapers
Pumps
Road Rollers
Rock Crushers
Rotary Soil Tillers
Saw Mills
Screening Plants
Shovels
Soil Stabilizers
Stave Mills
Tractors
Trucks
Wellpoint Pumps

IT'S WISE FOR YOU TO SPECIFY GM DIESEL

Gulf Quality Lubricants and Fuels

help contractor finish highway project

ahead of schedule

Pullen and Owens Company, Nashville, Tenn., recently completed the straightening of U. S. Highway 29 near Greensboro, N. C. The project involved 716,000 yards of excavation, 63 acres of clearing, 26 acres of grubbing, plus moving building units from the right of way, and the construction of over a mile of concrete pipe.

"DELAYED for several days by heavy rains, we were forced to push equipment to the limit on this job to finish ahead of schedule," says W. P. Owens of Pullen and Owens. "But every unit stood up—thanks to good maintenance with Gulf quality lubricants. Not a single major delay was chalked up to mechanical troubles. And Gulf fuels helped us get top engine performance."

Pullen and Owens is one of many leading contractors that have adopted Gulf quality lubricants and fuels as basic job insurance—they know from experience that with Gulf products equipment performs better, stays on the job longer, and operates at lower expense for maintenance.

Gulf Oil Corporation
Gulf Refining Company

GULF

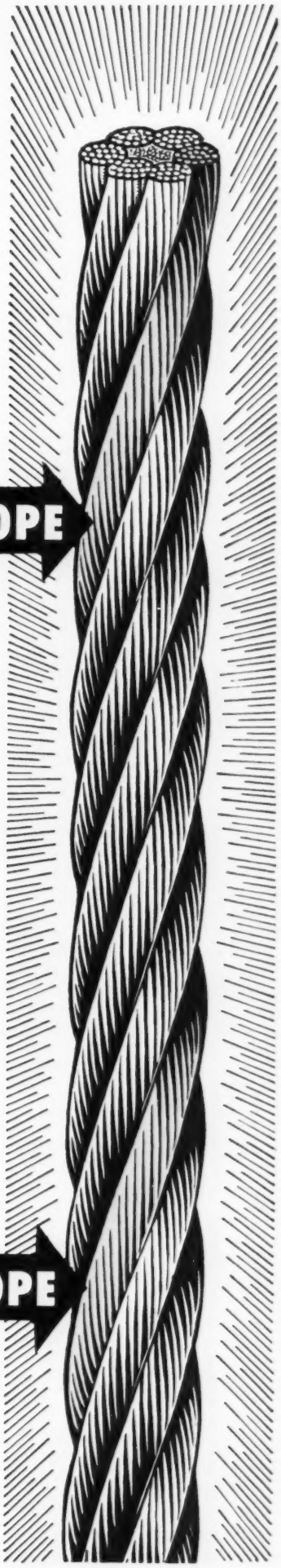
Division Sales Offices:
Boston · New York · Philadelphia
Pittsburgh · Atlanta · New Orleans
Houston · Louisville · Toledo

Since 1887
the trade-mark identification of
Yellow Strand Wire Rope
has been a

Yellow Strand in the ROPE

For years we have used
Yellow on our reels and
Yellow in our advertising;
but when you buy wire rope,
the way to be certain of getting
genuine Yellow Strand
is to look for the

Yellow Strand in the ROPE

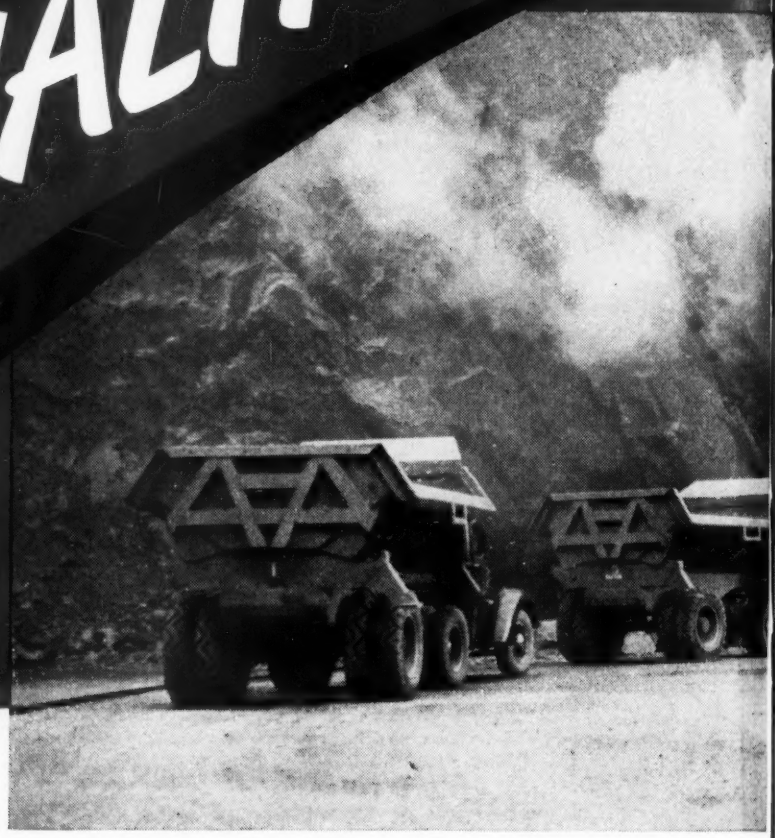


Broderick & Bascom Rope Co., St. Louis

Branches: New York, Chicago, Houston, Portland, Seattle

Factories: St. Louis, Seattle, Peoria

EXTRA QUALITIES-



SINCLAIR

Made specially for gasoline-powered bus, truck, tractor and construction equipment service . . . where the pull is hard and steady

FOR FULL INFORMATION OR LUBRICATION COUNSEL
WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20, N. Y.

SELECTED CRUDE

SPECIAL REFINING TREATMENT

TESTED ADDITIVES

PROVEN PERFORMANCE

OPALINE TBT OIL

When heavy load imposes extra demands on engines of trucks, buses, tractors and construction equipment, the motor oil must possess extra qualities.

Sinclair OPALINE TBT Oil is made with special additives to fortify it against oxidation tendency under high temperatures, gum, lacquer and carbon deposits. Special detergent qualities help keep engines clean; inhibitors protect against bearing corrosion and foaming.

An extra-duty oil for extra-duty service. It's made in grades to suit varied engine designs and operating requirements of equipment in the automotive, construction and mining fields.

SINCLAIR

AUTOMOTIVE OILS

PMCO

All Purpose

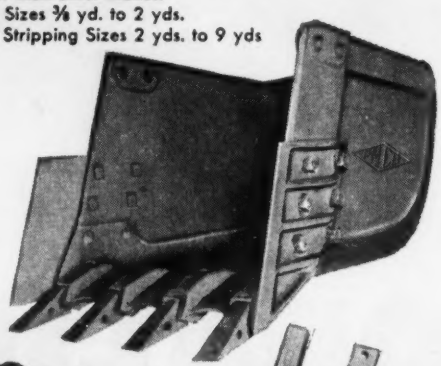
America's Largest Builder of Material Handling Buckets

SHOVEL
PULL SHOVEL
DRAGLINE
CLAMSHELL

FRONTS, BOTTOMS, SCOOPS and TEETH shown in color on buckets are 14% manganese steel developing tensile strength up to 120,000 p.s.i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.

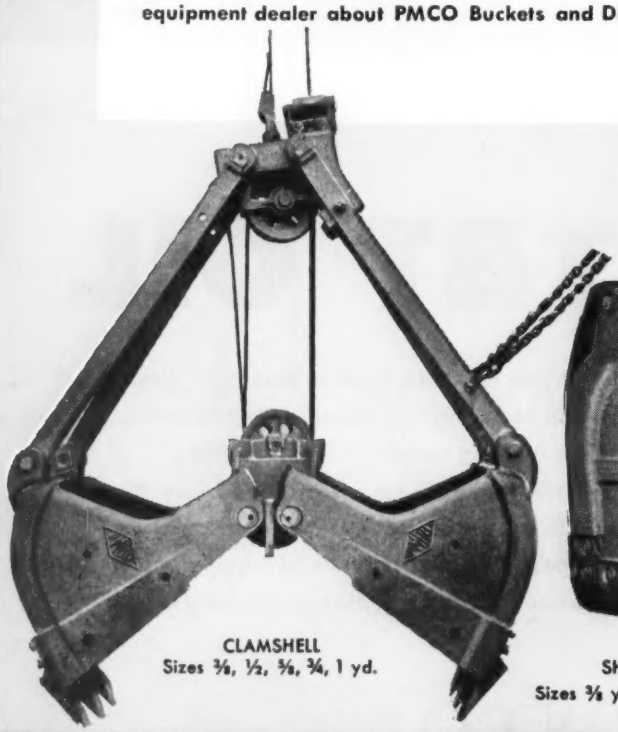
Experience Counts. **See your shovel man or equipment dealer about PMCO Buckets and Dippers.**

DRAGLINE
Perforated Sizes ⅜ yd. to 2 yds. 20%-40% lighter than other makes.
Solid Sizes ⅜ yd. to 2 yds.
Mine Stripping Sizes 2 yds. to 9 yds



PULL SHOVEL
Outside Cutter Widths: 21", 26", 31", 36", 39"

On the ½ yd. and ¾ yd. Shovel, Pull Shovel, and Dragline Buckets, all teeth are interchangeable—a great advantage to operators.



CLAMSHELL
Sizes ⅜, ½, ⅝, ¾, 1 yd.

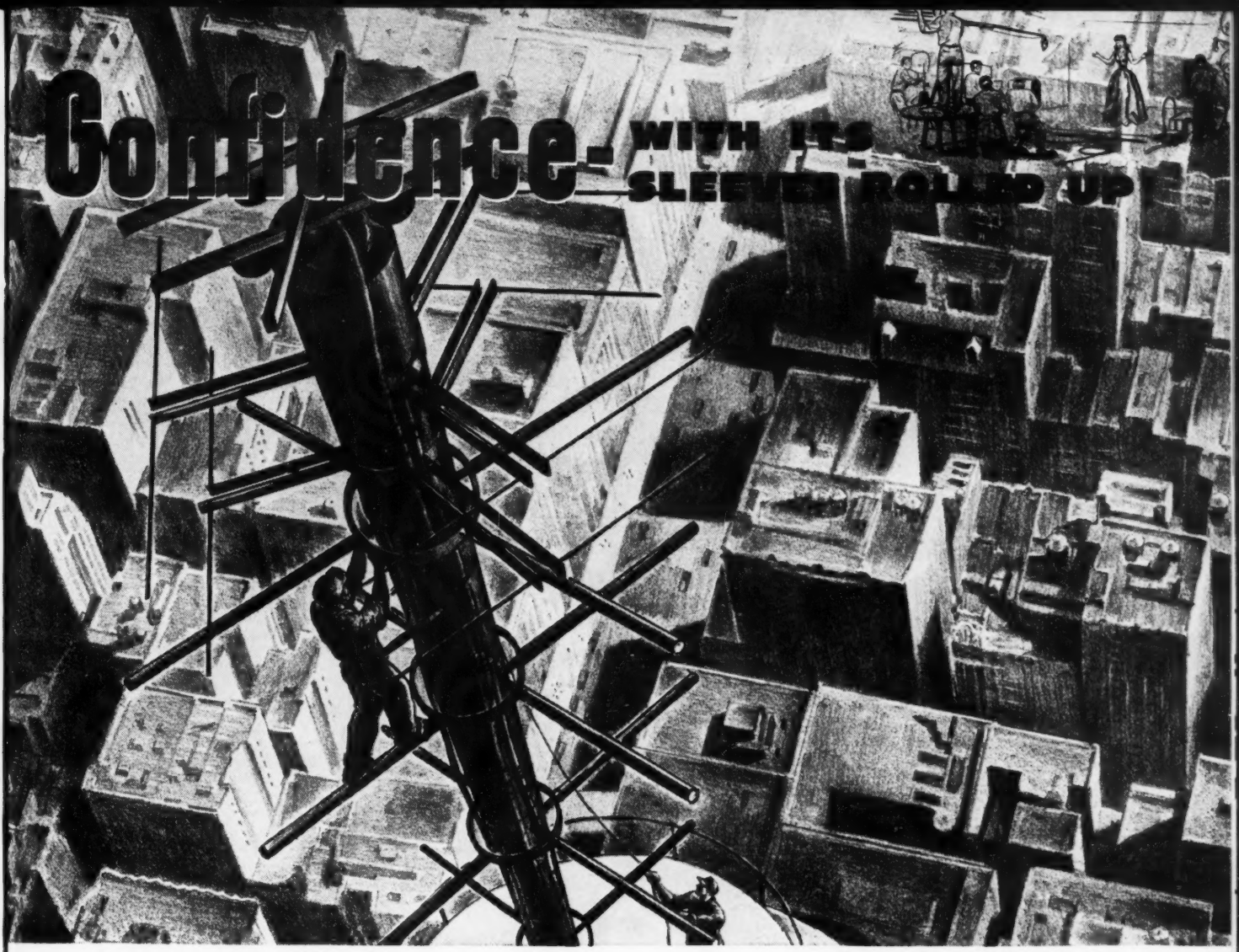
SHOVEL
Sizes ⅜ yd. to 18 yds.

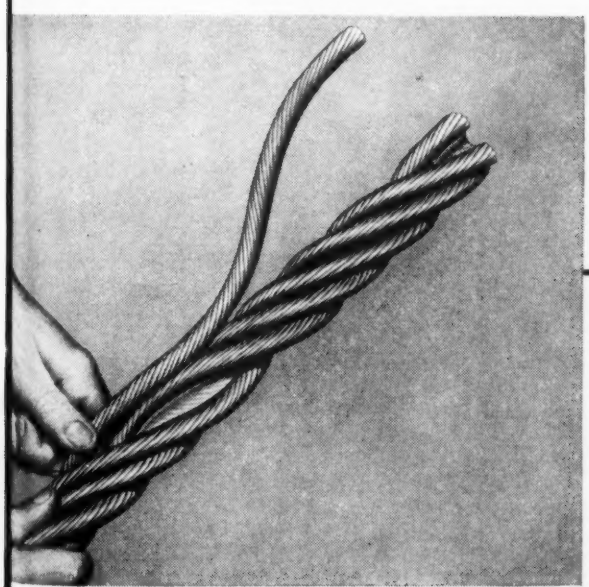
"Quality Since 1880"

PETTIBONE MULLIKEN CORP. CHICAGO 51, U. S. A.

WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES

Confidence—WITH ITS SLEEVES ROLLED UP





ATOP THE WORLD'S TALLEST BUILDING . . . yet not high enough! Television's need for unobstructed, long-range broadcasts may be met by planes in the stratosphere, relaying signals from the earth. Engineers working on this problem are confident of ultimate success.

With like confidence, Roebling blazes new trails in developing and making products vital to communication and all other industries. And the widespread confidence reposed in Roebling is our most guarded asset. Leadership is maintained only by constant progress . . . our ideal is to make Roebling products and engineering service the best obtainable anywhere, *any* time.

WHEN TO SPECIFY ROEBLING *Preformed* WIRE ROPE

WHEN IT WILL SAVE YOU MONEY is the time to specify Roebling Preformed Wire Rope. Wherever wire rope is subjected to severe bending, Roebling Preformed is an outstanding money-saver. On thousands of installations it lasts far longer than Non-Preformed ropes . . . pulls down performance costs to an all-time low.

Great resistance to fatigue from bending helps give Roebling Preformed a long life, but you can chalk up other big advantages. Preformed is not inclined to twist and kink . . . is easy to handle and install. It can be cut without seizing. Broken wires lie flat . . . don't injure hands or chew up drums and sheaves.

Get your Roebling Field Man's advice about Preformed and the possibility of its saving you money. You can act on his suggestions with full confidence for he *knows* wire rope, how to choose the *right* one, how to maintain it for top service. Write or call him at your nearest Roebling branch office.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY
Branches and Warehouses in Principal Cities

A CENTURY OF CONFIDENCE ROEBLING

★ *WIRE ROPE AND STRAND* ★ *FITTINGS* ★ *SLINGS* ★ *SUSPENSION BRIDGES AND CABLES* ★ *AIRCORD, AIRCORD TERMINALS AND AIR CONTROLS* ★ *AERIAL WIRE ROPE SYSTEMS* ★ *ELECTRICAL WIRE AND CABLE* ★ *SKI LIFTS* ★ *HARD, ANNEALED OR TEMPERED HIGH AND LOW CARBON FINE AND SPECIALTY WIRE, FLAT WIRE, COLD ROLLED STRIP AND COLD ROLLED SPRING STEEL* ★ *SCREEN, HARDWARE AND INDUSTRIAL WIRE CLOTH* ★ *LAWN MOWERS*

BIG tools for

30-YD capacity "B" TOURNAPULL

300 H.P. rubber-tired "B" TOURNADOZER

R.G. LeTOURNEAU LeT EQUIPMENT

TOURNAPULLS T

BIG production

IF PRODUCTION EARTHMOVING is your business, you'll find this powerful new team — B Tournadozer and extra-capacity B Tournapull — the answer to your high-production requirements.

The B Tournapull moves 30 cubic yards every trip, over twice the usual scraper pay-load . . . doubles your dirt-moving output per man hour . . . cuts your operating and maintenance costs practically in half.

To the Big B Tournapull speed, flexibility and extra capacity, add the terrific pushing power of the new 300 h.p. B Tournadozer . . . and you have an earthmoving team that cannot be equaled in the scraper field . . . IN PAY YARDS MOVED. The giant, powerful Tournadozer has the speed and maneuverability to synchronize its full 300 h.p. "push" with the 225 h.p. "pull" of the B Tournapull to get BIGGER loads FASTER . . . 30 cubic yards loaded in less than one minute.

Matched Equipment — This pair of BIG B's is matched right down the line . . . both are built for the rough going of BIG PRODUCTION earthmoving . . . both have constant-mesh, constant-power Tournamatic Transmission with instantaneous gear selection . . . both have labor-saving electric controls . . . and both speed along on BIG 24.00 x 29 tires that are interchangeable from one rig to the other. In addition, these new-type tires have tapered beads that lock tire to rim . . . rayon cord construction to safely carry tremendous loads at extremely low pressures. Result: greater traction and flotation in soft materials . . . fewer weather delays.

"B" is more than a model number for this high-speed, rubber-tired earthmoving team . . . it's a symbol of BIG TOOLS for BIG PRODUCTION. Ask your LeTourneau Distributor to show you how these "B for BIG" tools can increase your production and profits in 1948.

R. G. LeTOURNEAU, Inc., Peoria, Ill.

Tournapull—Trademark Reg. U.S. Pat. Off. C88
Tournadozer, Tournamatic—Trademark

TOURNADOZERS

Do you know?..

Why it pays to build earth-moving equipment with U·S·S HIGH STRENGTH STEELS

1. With rolled U·S·S High Strength Steels you can increase strength and rigidity—without increasing weight.
2. You can reduce weight at low cost—without reducing ability to withstand maximum requirements of earth-moving equipment.
3. Their use insures higher resistance to shock, impact, wear and atmospheric corrosion.
4. Their formability and weldability make fast, easy fabrication possible.
5. They have behind them a record of successful application unapproached by any other steel of similar type.

BECAUSE of these highly desirable advantages, U·S·S High Strength Steels are today being incorporated in big capacity earth-moving equipment of all kinds as well as in many accessories. Their use is synonymous with better performance and greater endurance.

Scrapers, bulldozers, trucks, trailers, excavating shovels, draglines and clamshells that are outstanding for their ability to do more, to last longer, and to operate at lower cost, owe much of their better performance and greater efficiency to the use of U·S·S High Strength Steels in all or part of their construction.

Ten years' experience has proved that these steels will give to heavy duty earth-moving equipment properties which are necessary to insure maximum dependability in operation and added service life.

To help you apply these steels most economically, we place at your disposal a wealth of practical engineering and fabrication data. Have you a copy of the COR-TEN book and other High Strength Steel publications?

Our High Strength Steel specialists will be glad to discuss the uses and availability of these steels with you at any time.

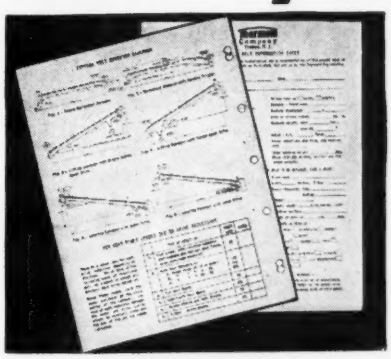
U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S ABRASION-RESISTING · U·S·S MANGANESE-NICKEL-COPPER

USS HIGH STRENGTH STEEL — UNITED STATES STEEL

UNITED STATES STEEL AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago · · COLUMBIA STEEL COMPANY, San Francisco
NATIONAL TUBE COMPANY, Pittsburgh · TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham
UNITED STATES STEEL SUPPLY COMPANY (Warehouse Distributors), Chicago · UNITED STATES STEEL EXPORT COMPANY, New York

Thermoid

Conveyor and Elevator Belting



There are several standard types of Thermoid Conveyor and Elevator Belting with different thickness and cover characteristics to suit the materials to be handled, angle of incline, speed of belt and other wear factors. Special constructions are available to meet extreme requirements. To check your needs accurately, fill out a Thermoid Conveyor (or Elevator) Belt information sheet, available upon request. The data you furnish will enable us to recommend the most satisfactory and economical belt for your job.

For Severe Service...

Thermoid "HT" Type—Built to carry highly abrasive materials under severe conditions. Supplied with 48 oz., 42 oz. or 35 oz. hard duck, 32 oz. or 28 oz. fabrics. Skim coat between plies. Average friction 20 to 24 lbs.; average tensile strength of covers 3500 to 4000 lbs. In widths, number of plies and cover thicknesses as specified. Maximum width 60"; approximate roll length 525 ft.

For Regular Service...

Thermoid "A" Type—Is built to carry moderately abrasive materials in regular service. Furnished with 42 oz., 35 oz. hard fabric, 32 oz. or 28 oz. fabric. Skim coat between plies; average friction 16 to 19 lbs.; average tensile strength of covers 2500 to 3000 lbs. In widths, number of plies and cover thicknesses as specified. Maximum width 60"; approximate roll length 525 ft.

For Light Service.....

Thermoid "C" Type—Is made to carry non-abrasive materials under light service conditions. Furnished with 28 oz. or 32 oz. fabric. Average friction 12 to 15 lbs.; average cover tensile 800 to 1000 lbs. Number of plies and cover thicknesses are optional. Maximum width 60"; approximate roll length 525 ft.

Other Thermoid Conveyor Belts made to meet special conditions: Neoprene, for use where oil and grease are present; "Ruff Top", for packaged goods; "HH", for high temperatures; and Canners, for fruits and vegetables—Information upon request.

The Thermoid line includes: **Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.**

Thermoid **Thermoid Company · Trenton, N. J., U. S. A.**

Automotive · Industrial · Oil Field · Textile Products

DEPENDABLE

For hundreds of Heavy

53 H.P. at 1500 R.P.M.•

THE INTERNATIONAL UD-9

DIESEL POWER UNIT

There is no better heavy-duty engine of half a hundred horsepower than this 4-cylinder, valve-in-head International Diesel. It provides dependable, low-cost power for operating rock crushers, conveyors, fans, pumps, hoists, pavers, compressors and many other units of equipment for construction and road building.

The UD-9 develops 53 horsepower at 1500 r.p.m. This is *working horsepower,* for industrial intermittent load applications. And it is economical power because of the operating efficiency and ruggedness of the International design.

Yes, for low-cost, dependable power there is no question about the superiority of the engine or power unit that bears the International name. Your International Industrial Power Distributor is prepared to prove this to your complete satisfaction.

Industrial Power Division

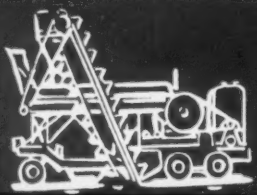
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue • Chicago 1, Illinois

Road surfacing—two UD-9 Diesels power the job economically.

Ditching moves ahead on schedule with UD-9 power.

CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

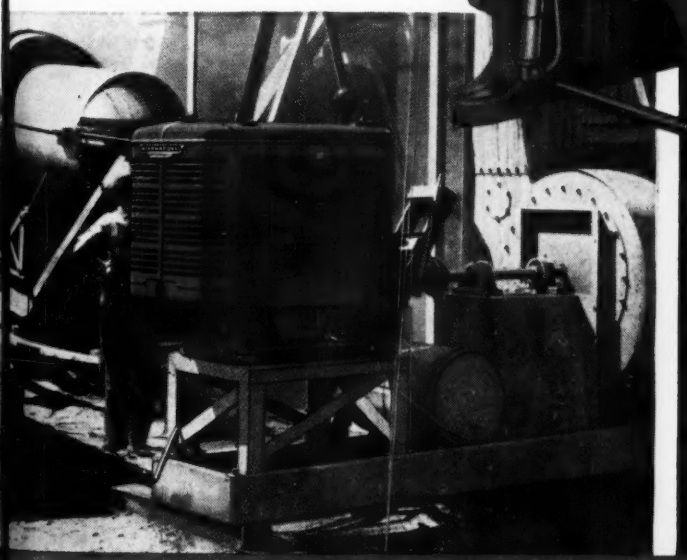
INTERNATIONAL



LOW-COST POWER

-Duty applications

Dependability is built into International Diesel Power Units. Construction features that make them superior for all heavy-duty powering jobs include: self-contained, all-weather starting system; advanced design combustion for maximum utilization of fuel; single-plunger International fuel injection pump that meters fuel accurately to meet all load conditions as interpreted by a sensitive, variable-speed governor and torque control; induction-hardened crankshaft; precision-type bearings; full-pressure lubrication; by-pass type thermostatic cooling, and adequate, efficient filtering of fuel, lube and air.

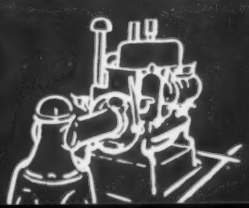


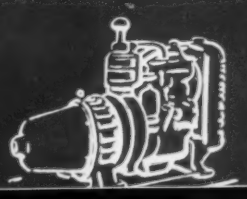
Low-cost power for large-capacity blowers: the UD-9.

Applications of the UD-9 Diesel Power Unit as shown in the pictures to the left are representative of the many and diverse uses to which this dependable power may be put. International Diesels have the lugging ability—the hang on under load—to pull through and deliver the power you require at all times . . . at lowest cost for fuel, lubrication and maintenance.

INTERNATIONAL HARVESTER

Industrial Power





. . . a dependable air supply for every job

For big construction jobs. . . .

DAVEY AIR CHIEF 315

On big construction projects everywhere, you'll find Davey Air Chief Model 315's.

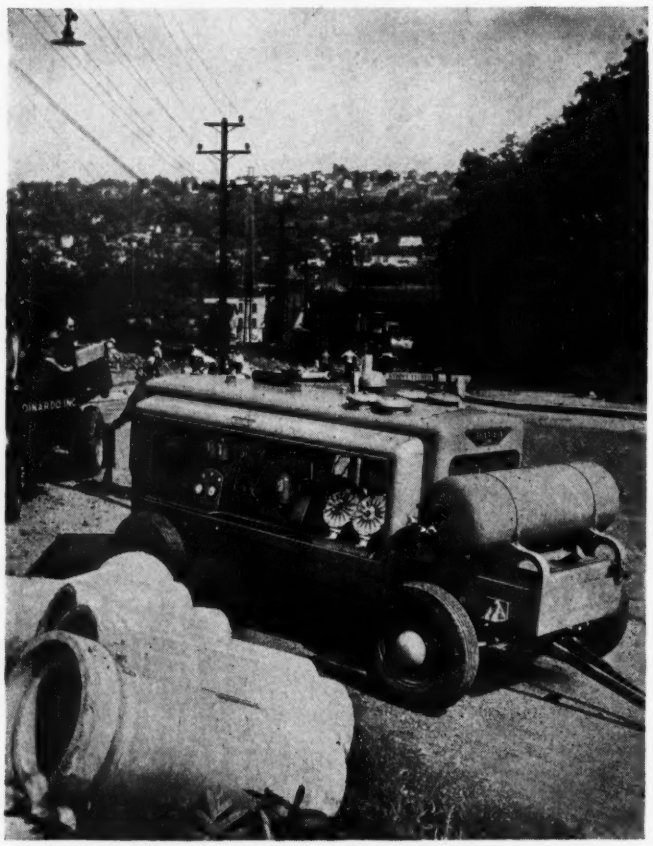
Here is a machine that is built, from the drawing boards up, for the toughest service. Every part is of extra heavy construction . . . from the sturdy chassis and undercarriage to the famous Davey W type air-cooled compressor.

Highest operating efficiency is assured by the same Davey craftsmanship that, in 1922, built the world's first air-cooled portable.

Every Davey is equipped with Permanent Peak Efficiency Valves. Leakproof valve construction plus perfect seating, coupled with special alloy compressor heads, guarantees longer, more economical life. Davey heads provide a ready path for heat removal —three times faster than cast iron.

Air Chiefs are available in 60-105-160-210-315 c.f.m. trailer models . . . also in "Auto-Airs" for truck mounting.

P & P-121



Air Chief at work in Dravosburg, Pa.

In 1945 these Davey valves were removed for examination for the first time after more than fifteen years' service. In obviously perfect condition and without need of cleaning, they were put back into the machine, are running today.

DAVEY

DAVEY COMPRESSOR CO.
KENT, OHIO

HOUGH PAYLOADERS

SAY "HUFF"

PATENT REGISTERED

Pay Every Day

DIGGING POWER — Model HF loading blasted rock in a quarry.

BULLDOZER Blade attachments, easily attached, increase Payloader usefulness.

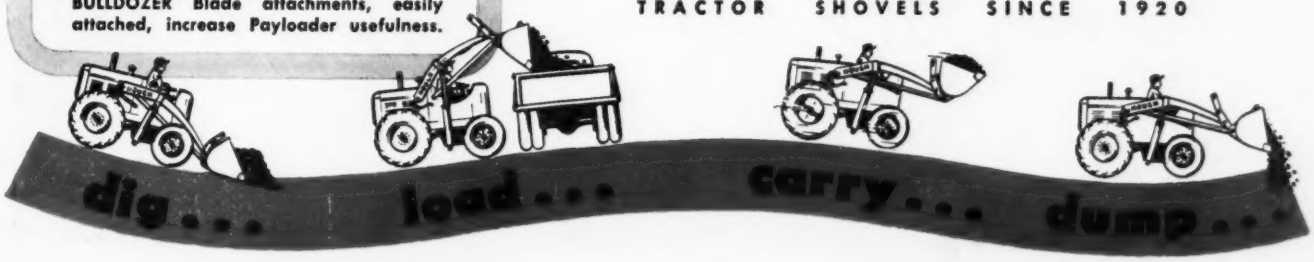
Payloaders are so versatile and so fast *to* the job and *on* the job that there is always work for them to do, winter or summer. They dig, grade, stockpile, load trucks, move dirt and materials, lift, carry, pull, remove snow . . . pack more digging power, mobility, operator visibility, versatility and work-ability than heretofore available in a tractor shovel.

Payloaders are completely Hough designed and built from the tires up, the product of 27 years experience in tractor shovel manufacture. Three sizes are now available — 10½ cu. ft., ¾ yard and 1¼ yard. All have the efficient Hough hydraulic bucket control that dumps and closes the bucket by power so that speed of bucket-dump and instantaneous bucket-closing are fingertip controlled by the operator. Bulldozer Blade and Crane Hook attachments are available. Your nearby Hough distributor will be glad to give you complete Payloader performance data. See him today or write us for full information.

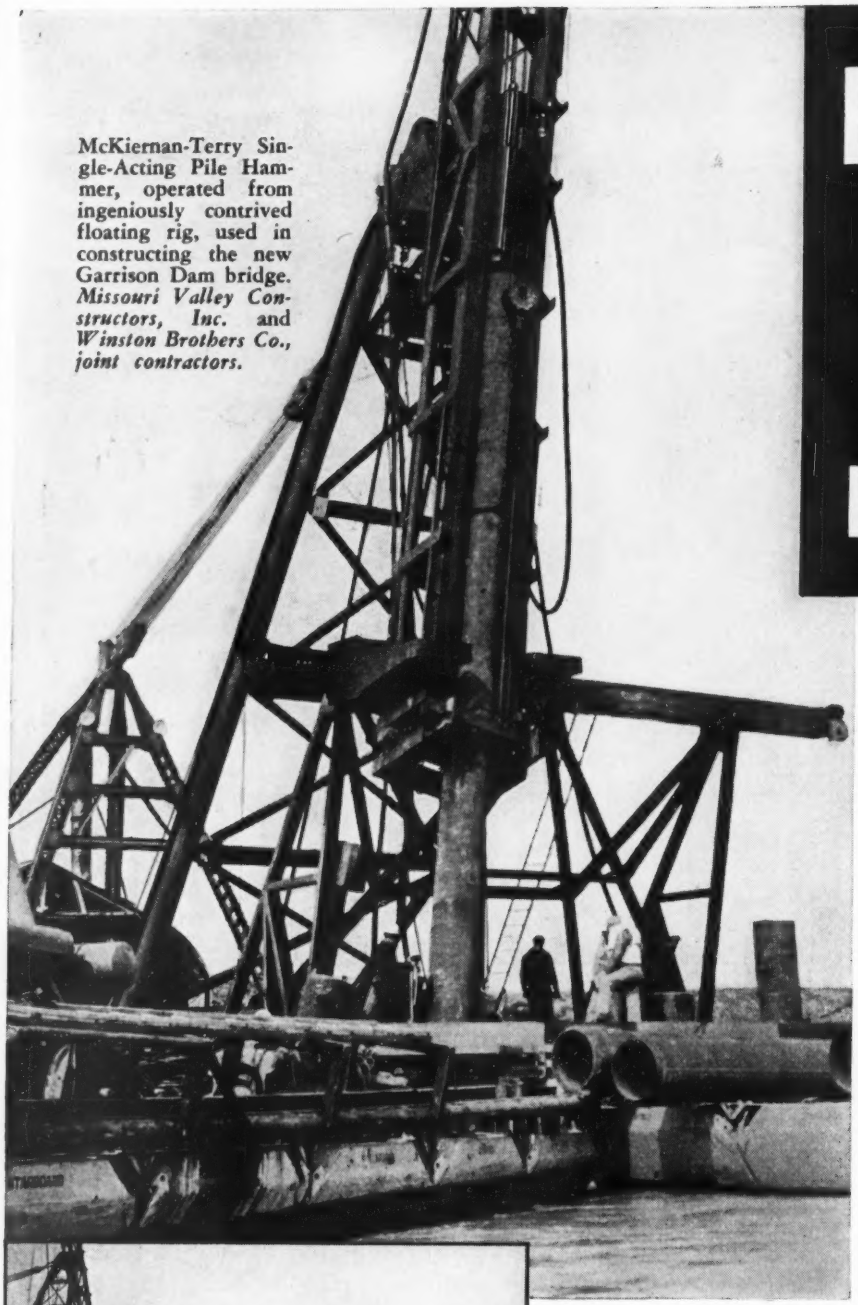
THE FRANK G. HOUGH CO.

706 Sunnyside Avenue — Libertyville, Illinois

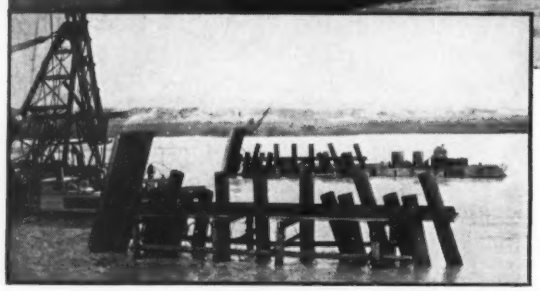
TRACTOR SHOVELS SINCE 1920



PRECISION DRIVING OF Big Steel Piles



McKiernan-Terry Single-Acting Pile Hammer, operated from ingeniously contrived floating rig, used in constructing the new Garrison Dam bridge. *Missouri Valley Constructors, Inc.* and *Winston Brothers Co., joint contractors.*

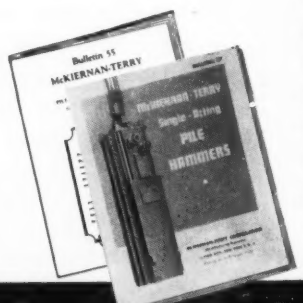


One of the eight piers that support the Garrison Dam bridge, showing complicated positioning of batter piles. Each pier founded on 15 piles — 3 driven vertical and 12 on a 4 to 12 batter in six different directions.

In selecting equipment for building the 1350-foot rail and highway bridge across the Missouri River at Garrison Dam, North Dakota, the contractors made the wise choice of a No. S-10 McKiernan - Terry Single - Acting Pile Hammer.

This difficult job involved driving 24-inch tubular steel piles, 100 feet long, into the glacial till of the river bed at six different angles, to insure stability against scour, ice and floods. In each of the six deeper water piers three downstream piles were driven to the unusual bearing load of 180 tons. All other piles were driven to 150 tons bearing.

The successful handling of this complex pile-driving job is added evidence of the dependability of McKiernan-Terry hammers . . . however complex or difficult the job, contractors always find the correct hammer to handle it in the McKiernan-Terry standardized line of five SINGLE - ACTING hammers, ten DOUBLE - ACTING hammers and two DOUBLE-ACTING extractors. For full information, write for free Bulletins No. 55 and No. 57.



MK-248

McKiernan-Terry
CORPORATION
Manufacturing Engineers
14 PARK ROW NEW YORK 7, N. Y.

NOW YOU CAN MOVE DIRT

at still lower cost!!!

Sensational Price Reduction of LaPlant-Choate Motor Scrapers Cuts Earthmoving Costs Again!!

Here's your opportunity to really make money on earthmoving jobs. At this new low price, LaPlant-Choate Motor Scrapers can compete successfully with track-type tractor-scraper units on hauls of 400 feet and up, and are way ahead of other rubber-tired scraper hauling units at any distance. Look at all the features—in addition to new low first cost—that mean you can bid lower and still make a good profit. More yards per trip—more trips per hour—because of:

MORE POWER—225 h.p. Buda Diesel engine provides over 16 h.p. per struck yard of capacity—plenty of "zip" up and down grades in any material.

BIG TIRES—21:00 x 29 20-ply rating, tapered bead, traction-type tires interchangeable front and rear provide ample flotation and traction.

HYDRAULIC STEERING—Positive, double-acting, effortless steering. No jackknifing—no "nosing" or "hunting". No road shock thru steering wheel.

4-WHEEL AIR BRAKES—350 sq. in. of braking surface on each wheel. Safer, surer stopping.

MODERN POSTWAR SCRAPER—14 yd. struck capacity—17.5 yd. heaped capacity LPC scraper embodies all the latest improvements for faster, easier loading, hauling and spreading and definite lower yardage costs.

Your nearest LPC distributor will give you the latest information on deliveries. Contact him today!

LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa;
1022 77th Avenue, Oakland, California.

LAPLANT CHOATE

HIGH SPEED EARTHMOVING EQUIPMENT

NEW

Thor BACKFILL TAMPERS

NEW POWER FOR FASTER WORK

NEW STREAMLINED DESIGN

EASIER HANDLING

Just open the valve . . . the new Thor Backfill Tamper will pound more dirt into the hole than you can shovel out of it!

Even the stiffest backfill is pounded solid—*quickly*, with the rapid, powerful blow of this new Thor . . . with a minimum of lifting by the operator. New plate valve and enlarged air ports deliver maximum power under varying air line pressure. Automatic lubrication. Positive-lock butt. Positive air seal.

Call your Thor dealer for a demonstration, or write for circular.

ACCESSORIES

For top efficiency, always specify Thor hose, couplings and clamps.

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. Jackson Boulevard, Chicago 6, Illinois

Export Division: 330 West 42nd St., New York 18, N. Y.

Birmingham	Boston	Buffalo	Cincinnati	Cleveland	Denver	Detroit	Houston
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Thor PORTABLE POWER TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

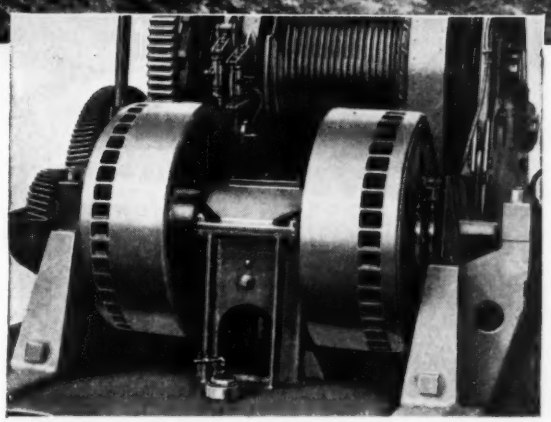
SWING FRICTIONS ARE *OUT*

THE MAGNETORQUE'S *IN*

P&H 1055 owned by Lytle-Amis-Green at Potholes Dam, Columbia River Irrigation Project. Nine million yards of rock and dirt will make this the 4th longest dam in the U. S.

It's the downright simplicity of the P&H Magnetorque that makes such a big difference in overall operation. It makes swing frictions obsolete — puts an end to high maintenance costs — eliminates routine adjustments that normally rob machines of productive time.

The Magnetorque handles all swing motions electro-magnetically — yet without big motors or tricky, complex electrical equipment. It's simple, dependable, trouble free. And it's smooth — with fast, velvety starts and stops. No jolting and jarring to strain the swing assembly or other parts of the machine. Ask us to tell you where you can see one at work.



THE P&H MAGNETORQUE UNIT transmits power for swing electromagnetically without mechanical contact between driving and driven members—without friction, without wear. It lasts the life of the machine.

P&H

EXCAVATORS
4494 West National Avenue
Milwaukee 14, Wis.

HARNISCHFEGER
CORPORATION
EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · HOISTS · WELDING ELECTRODES · MOTORS

JAEGER ENGINEERED for

Because more air is THERE

Steady pressure from the over-size air receiver of his Model 210 Jaeger enables Ralph Facciolo to complete several hundred feet per day of 30″ cut in New York City pavement (5″ asphalt top on 6″ concrete base).

From 60 to 600 cfm of air requirements, Jaeger engineering gives you the combination of high efficiency compressor unit, big engine and up to 70% larger air receiver that keeps steady full-pressure behind your tools, plus the great economy of Jaeger "Fuel Miser" control which automatically regulates the engine speed to air demands.

It is this "Air Plus" performance that makes Jaeger compressors first choice today with operators who rate results on the basis of daily footage drilled, yards of pavement broken, material excavated or other measures of *actual job production.*

If you're interested in getting more work done for the wages that you pay, see your Jaeger distributor about a new "Air Plus" compressor.

THE JAEGER MACHINE COMPANY

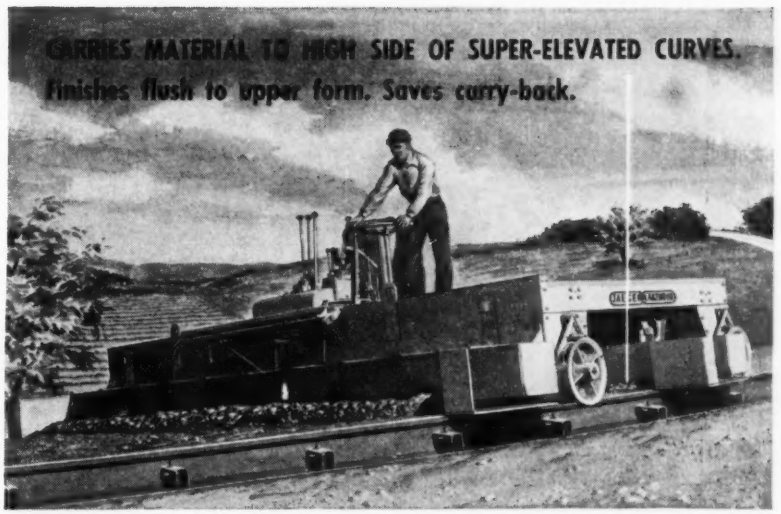
labor-saving mass production

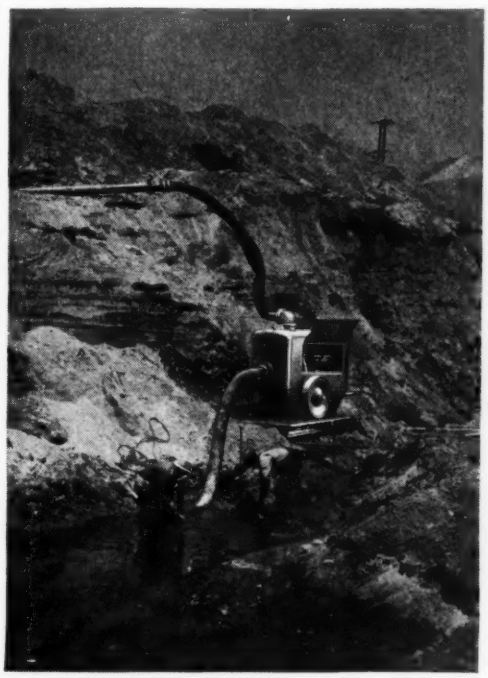
Jaeger DIAGONAL SCREED Finisher does what no other finisher can do:

1. Diagonal rear screed, with angle controlled by operator, automatically carries material to the high side of pitched slab and super-elevated curves and compacts it solidly against the upper form. Eliminates or greatly reduces carry-back — a direct labor saving.

2. Combination of diagonal rear screed and transverse front screed produces a more accurate surface than is possible with any transverse finisher; finishes stiff mixtures faster without tearing; saves extra passes and reduces costly hand work.

3. Faster, more flexible, with its screed speeds fully independent of traction, this revolutionary Type "X" Jaeger gives you the mass-production finisher you need with today's mass-production pavers.





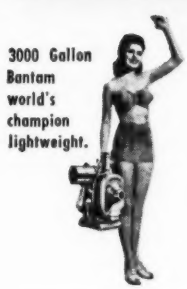
Jaeger Remixing-Compacting Spreader Completes Today's Paving "Team"

Latest improved models, with greater capacity and range of work, mechanically remix, spread, compact and strike off material behind as many as two pavers, ready for precision finishing. Spreading screw, exclusive with Jaeger, positively eliminates segregation and resulting honeycomb, produces denser slab texture than any other method. Core tests prove it. Widths 10-15, 20-25 ft.

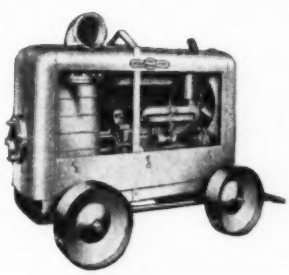
GOODBYE WATER!

The sure way to lick a water problem is to start the engine on a Jaeger "Sure Prime" Pump. It's extra powered, conservatively rated and equipped with two separate, simultaneous priming actions — to prime faster, pump full volume under tough conditions and for thousands of hours longer than ordinary pumps.

More Pump for Your Money: Only Jaeger gives you a factory-tested and certified pump completely enclosed and weather-protected, with both inherent and jet priming, replaceable liners or seal rings, long-life Lubri-Seal, self-cleaning shell design and capacities from 3000 to 240,000 gph to meet any need for drainage or supply work.



Sold, rented, serviced in 130 cities of U. S. and Canada. See your Jaeger distributor or send for latest catalogs on Pumps, Air Compressors, Finishers, Spreaders, Mixers, Hoists, Bituminous Pavers.



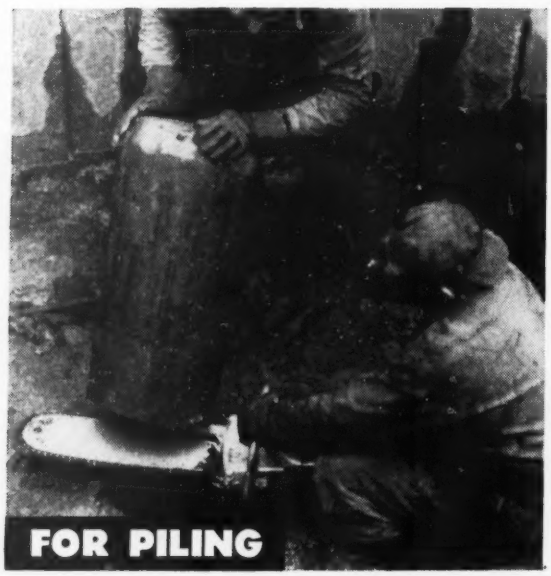
2" to 10" heavy duty dewatering pumps . . . 2" to 8" pressure pumps for higher heads . . . lift and force diaphragm pumps . . . caisson pumps for depths exceeding 100 ft.

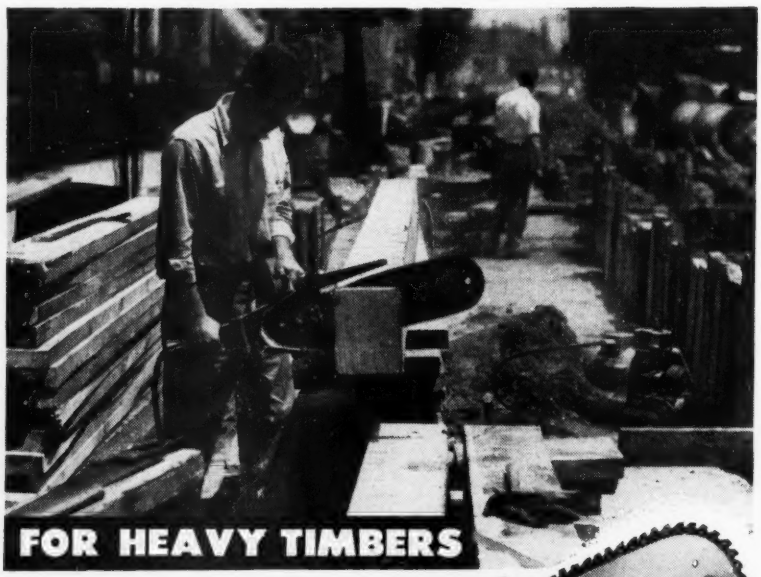
Columbus 16, Ohio

REGIONAL OFFICES: 1504 Widener Bldg., Philadelphia 7, Pa. 226 N. La Salle St., Chicago 1, Ill. 235 American Life Bldg., Birmingham 1, Ala.

Another Outstanding **HOMELITE** *Development— The New*

One Man ELECTRIC CHAIN SAW





The Saw That Will Cut Your Costs

This is it... an amazingly light yet rugged, powerful and efficient chain saw that will save time and cut costs everytime it is used... a *one man* High Cycle Electric Driven Saw that will cut a 12 x 12 timber in 9 seconds flat, and has a capacity up to 3′

With a Carryable Homelite High-Cycle Gasoline-Engine-Driven Generator as its power supply, you can use this 27 lb. chain saw *anywhere.* You can cut piling or heavy timber not only fast but right where construction and repairs are being done. Simple to operate, this saw makes cutting ... on all cuts, all positions... much easier. Its unique pivot action takes the strain off the operator. And there are no fumes or engine heat and vibration to cause fatigue. It it simple in design, sturdy in construction... sure to give you greater dependability and lower maintenance costs.

Send for new illustrated bulletin.

Get an Extra Bonus with Homelite Carryable Power

Don't forget this *most important point.* The Homelite Carryable Generator that you use to operate your Homelite One-Man Chain Saw is an *All-Purpose* Generator. You can use it to operate high-cycle tools such as grinders, nut runners, impact wrenches. You can use it for 110-volt circular power saws, electric drills and many other standard universal power tools. And for night work, you can use it to operate several brilliant floodlights.

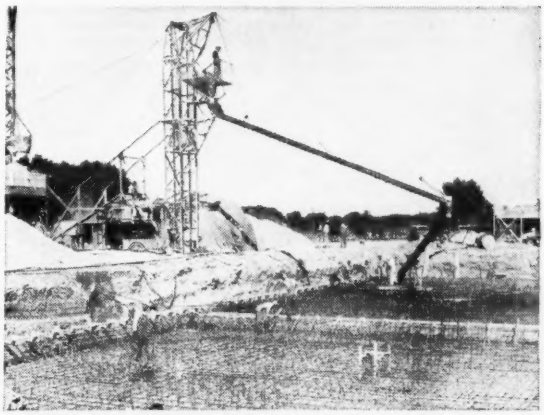
HOMELITE CORPORATION

CARRYABLE PUMPS • GENERATORS • BLOWERS

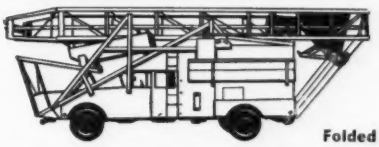
1005 Riverdale Ave., PORT CHESTER, NEW YORK

DUAL PURPOSE MACHINES

Making Profits for Contractors

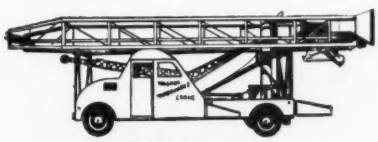


MIXERMOBILE



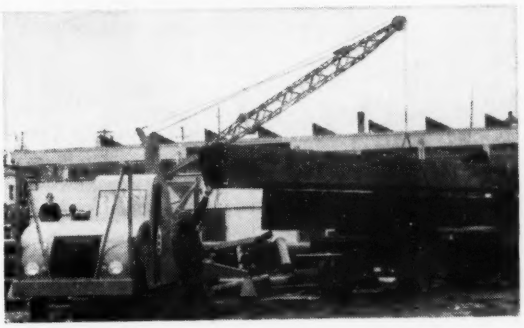
Folded for travel.

A portable concrete mixing and hoisting plant. Here the MIXERMOBILE is using 35 feet of tower and an 80-foot swivelled chute. The pour can be made anywhere within an arc of 270 degrees. *A big time saver when pouring matted slab!*



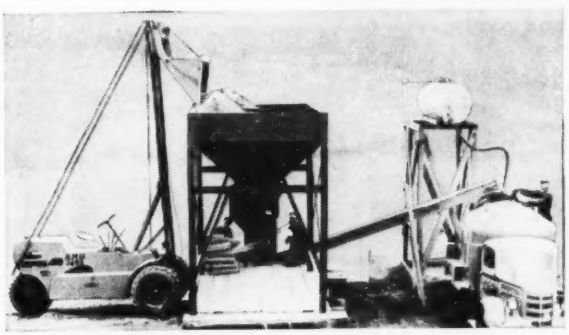
Folded for travel.

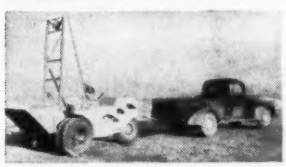
TOWERMOBILE-CRANE



A combination Crane and Tower with the chassis serving as a truck and power unit for the crane boom and the hoisting tower. Attachments include a lifting platform, ½-yard clamshell bucket and ¾-yard concrete hopper. *The TOWER can be installed or removed from the chassis with its own CRANE BOOM!*

SCOOPMOBILE





Can be towed or driven.

The perfect materials handling machine for a wide variety of jobs. Four full speeds forward and reverse, power steering and enclosed cab make it the all-around, all-weather machine. Quick change attachments include buckets, concrete hopper, crane boom, lift forks, fertilizer forks and backfill blade.

★ Meet your dealer at our exhibit at the Road Builder's Show, Chicago, Ill. July 16-24. Concession 3809 South Concourse.

There's a dealer near you . . . write for his name

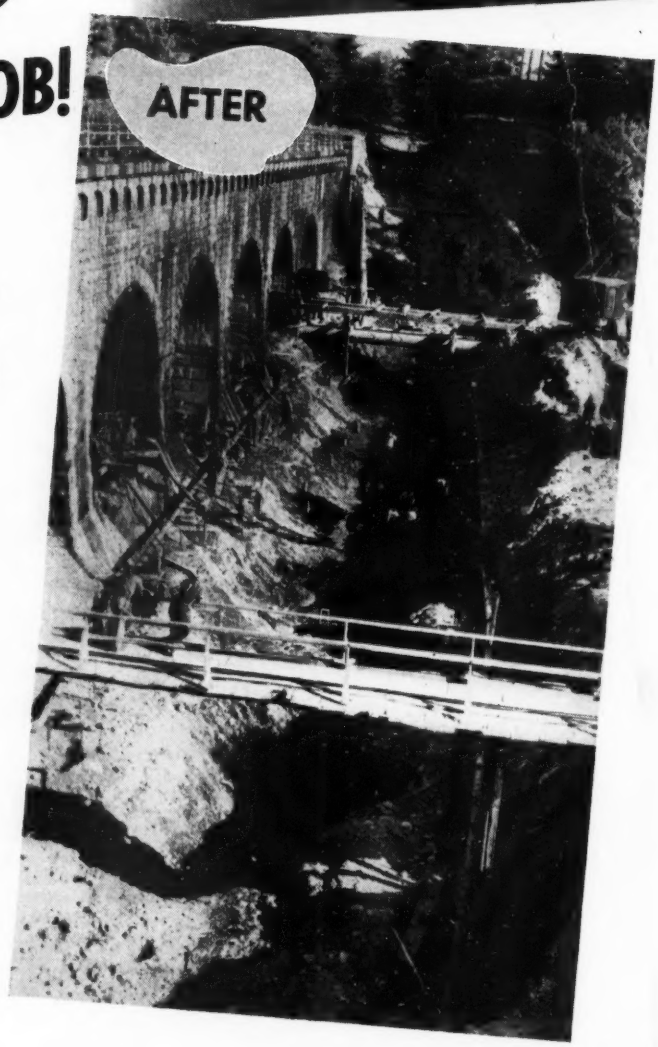
MIXERMOBILE MANUFACTURERS

6855 N. E. HALSEY STREET ★ PORTLAND 16, OREGON

MORETRENCH WELLPOINT SYSTEMS

Foundation for the inverted pipe siphon replacing the old brick-lined flume that carried Boston's water supply across the Assabet River at Northborough, Mass., for over half a century.

Contractor: Berke-Moore Co., Inc., Boston.
Owner: Metropolitan District Commission, Boston; Karl Kennison, chief engineer.



...what a WHALE of a difference they make on a WET JOB!

Every wet job presents specific problems. Mortrench is expert at solving them from start to finish. The successful dewatering of thousands of construction projects has given Moretrench an experience background of inestimable value. This experience is at your disposal. Call Moretrench to solve your pumping problem . . . quickly, economically, to your full satisfaction.

MORETRENCH CORPORATION

90 West St., New York 6 | 3037 S. Christiana Ave., Chicago 23, Illinois | 7701 Interbay Blvd., Tampa 6, Florida | 315 W. 25th St., Houston 8, Texas | Rockaway, New Jersey

are you being taken for a buggy ride?

Is the high cost of materials and labor clouding your profit picture . . . endangering your customer relations?

To cost-conscious contractors and engineers, Rex Pumpcrete . . . *the pump that pumps concrete through a pipe line* . . . provides a proved way to substantially reduce costs!

For example! Think of the costs involved in buggying concrete! Figure the savings to be gained when you can eliminate the buggy run and deliver concrete through a pipe line right to the point of replacement.

Then! Figure how much you could cut your bids if you could be assured the fastest, most advantageous form and steel setting sequence . . . if you could achieve a closer coordination between the trades (carpenters, steel setters, concrete crews) and reduce interference with these interlocking activities.

Because Pumpcrete makes these advantages possible through steady pumping instead of the usual occasional pour, you can cut days off your schedule . . . and that means money in your pocket!

Add to these cost-cutting advantages, the fact that Pumpcrete transports concrete through a pipe line on one or more levels . . . elevates or lowers and distributes concrete in ONE operation. Thus, you can eliminate the expense of road building and maintenance . . . trestling and scaffolding . . . towers and many other items of preparatory work that add materially to construction costs.

If you want to avoid being taken for a "buggy ride," talk to your Rex Distributor before you bid. He can show you how you can cut costs . . . improve concrete quality . . . make more money with "concrete by pipe line." If you prefer, write direct for free copies of informative Bulletins on Pumpcrete economy. Address Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wis.

REMEMBER, Pumpcrete can now be rented from your Rex Distributor so you can prove the economy of pipe line placement for yourself at low cost!

REX CONSTRUCTION MACHINERY

...a companion to the popular B87

Here's a new, medium-weight Gardner-Denver Paving and Concrete Breaker—the Model B67. It's a companion to the popular, heavier Model B87 and fits a wide range of jobs which do not require the more powerful tool. The B67 is especially suitable for horizontal operations such, as tearing out walls, boulder breaking in quarries and mines, trenching in shale or hardpan, or preparing black-top for patching. It is also useful for demolition work involved in altering or maintaining industrial plants.

Features of the B67

Famous Gardner-Denver Safety Latch. Like the B87, the B67 incorporates a safety latch on the throttle valve handle to prevent accidental operation of the hammer when moving the breaker about on a job with live air on the line.

Built-in Lubricator. Holds enough oil for several hours of operation with only one filling.

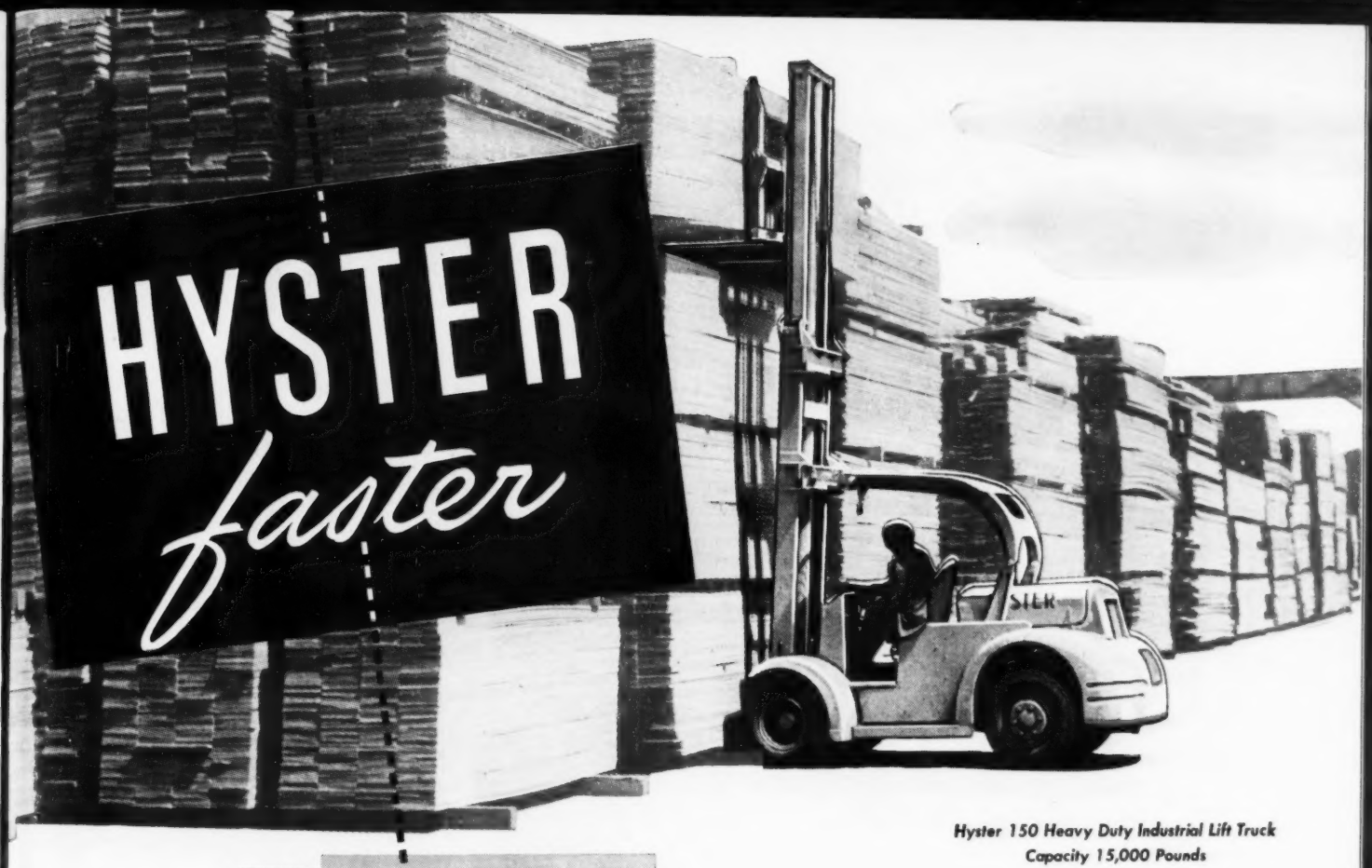
Easy to Operate. Cool handles are assured by having air inlet at side of cylinder and not through backhead. The steel rides steadily.

Renewable Chuck Liner. When chuck wears to a loose fit, it is unnecessary to replace entire chuck head.

All-weather Performance. The B67 won't "freeze" on cold, damp days.

For complete information, write to Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER SINCE 1859



Hyster 150 Heavy Duty Industrial Lift Truck
Capacity 15,000 Pounds

WITH VICKERS HYDRAULIC EQUIPMENT FOR STEERING . . . HOISTING . . . TILTING

The "Hyster 150" heavy duty industrial lift truck handles more work easier and faster because it utilizes Vickers Hydraulic Equipment for steering, hoisting and tilting.

Vickers Hydraulic Power Steering Booster makes steering easy no matter how tough the going. Road shock cannot be transmitted to the steering wheel because the steering load is carried by a hydraulic cylinder—not by the driver's muscles. An integral relief valve automatically protects the system against damage by overload.

The Vickers Double Pump that supplies the power for hydraulic steering also provides oil under pressure for actuating the cylinders that lift and tilt the load. This Vickers Vane Type Pump is exceptionally efficient and dependable. The exclusive hydraulic balance construction prolongs pump life by entirely eliminating pressure-induced loads and consequent wear. The vanes provide automatic take-up so that wear has no appreciable effect on performance. In addition, the pump automatically maintains correct running clearance throughout a wide range of operating conditions.

Vickers Double Pump for simultaneously supplying power to two separate hydraulic circuits.

Vickers Improved Hydraulic Power Steering Booster.

For additional information regarding other advantages of these Vickers units, write for the following bulletins: Vickers Vane Type Pump—Bulletin 36-12. Vickers Power Steering Booster—Bulletin 47-30. 3473

VICKERS Incorporated • 1494 OAKMAN BLVD. • DETROIT 32, MICHIGAN
DIVISION OF THE SPERRY CORPORATION
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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT FOR 27 YEARS

A LOOK AT THE FRONT END *shows another reason why*

LIMA

Close up view of front end of LIMA Type 802 Shovel. Clean-cut rugged design is characteristic of component parts of all LIMA equipment.

SHOVELS . . . Stay on the Job!

"LIMAS GIVE THE LEAST TROUBLE OF ANY MACHINES WE HAVE"

THIS STATEMENT from a customer is typical. LIMA excavating equipment has that extra "built-in" stamina which means increased production and minimum "down-time"

Take, for example, the Front End of the Shovel. Look at the sturdy boom—of all-welded construction with inside reinforcements for extra strength. Shipper shaft is splined for permanent alignment with crowd chain sprocket and pinions. Location—not on top, but near center line of boom gives better support, and at extended position allows direct pull, minimizing strain on cable, racking, shaft, and boom, also allowing higher lift and increased working range.

LIMA Type 1201 Convertible Shovel, Crane and Dragline.

The smooth machined throat of the large diameter sheave is a machined groove—accurately centered to shaft—with no high spots to wear cables. Independent chain crowd permits shaking of dipper. Spring bumper blocks take shock of dipper door and wood bumper blocks absorb shock of dipper at base of boom. Every component is designed for highest output with minimum maintenance.

Lima shovels range from ¾ to 6 yard capacities, cranes from 13 to 100 tons. Write for descriptive bulletins.

Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION

a thousand and one job-proved wire ropes

There's a Macwhyte rope that's the right rope for your equipment.

Macwhyte Wire Rope

Use PREformed Whyte Strand for easy handling and longer service.

Macwhyte Distributors and Mill Depots—carry stocks for immediate delivery. Macwhyte representatives will recommend the correct rope for your equipment. Catalog on request.

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2941 Fourteenth Avenue • Kenosha, Wisconsin
Manufacturers of Internally Lubricated Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies.
Distributors throughout U. S. A. and other countries.

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TRUSTWORTHY QUALITY*

* A rich new source of top-grade raw materials ...plus strict laboratory control over production ...means finer cements

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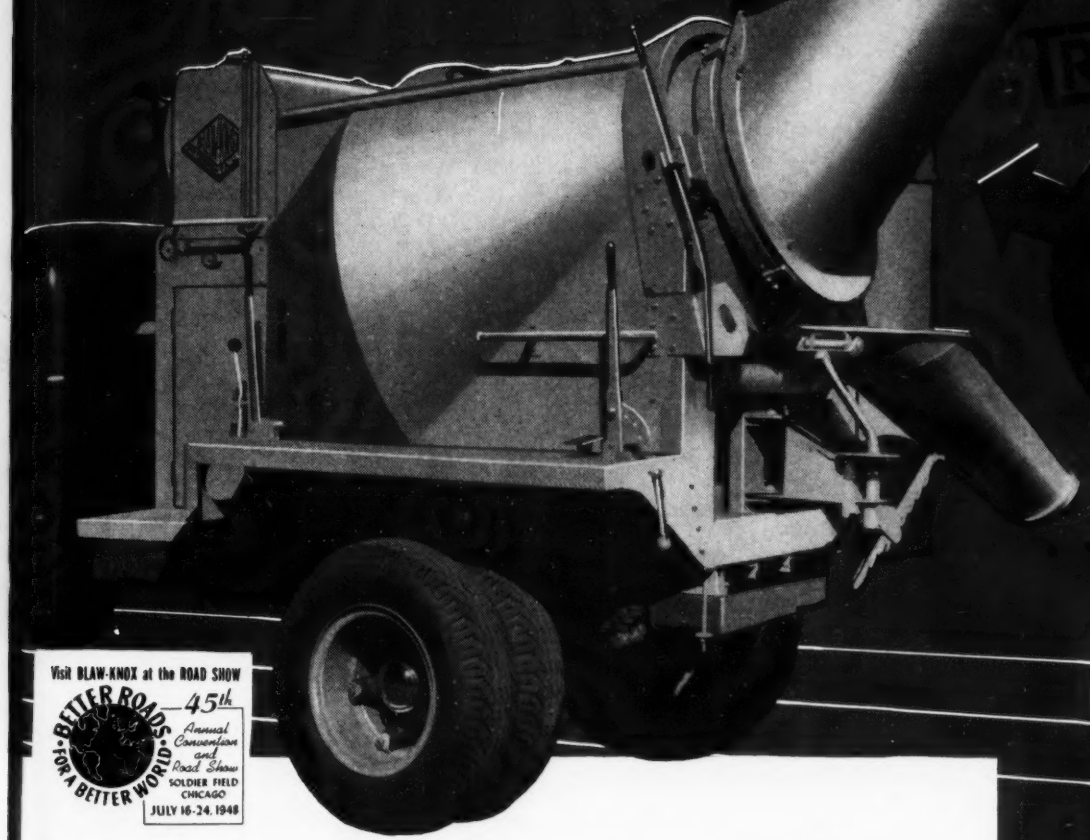
AMERICAN TRUST BUILDING • NASHVILLE 3, TENNESSEE

PORTLAND – HIGH EARLY STRENGTH – AIR ENTRAINING – MASONRY

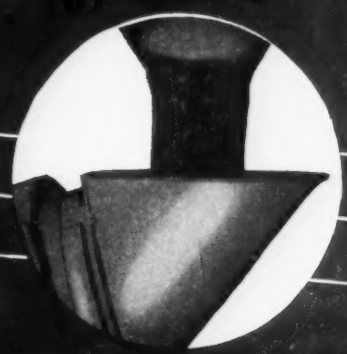
THE "NEW LOOK" in TRUCK MIXERS

Here's the BLAW-KNOX Hi-Boy

TRUKMIXER



WITH THE EXCLUSIVE REVOLVING HOPPER



Visit BLAW-KNOX at the ROAD SHOW
BETTER ROADS FOR A BETTER WORLD
45th Annual Convention and Road Show
SOLDIER FIELD CHICAGO
JULY 16-24, 1948

The "new look" in truck mixers—the Blaw-Knox HI-BOY—has a built-in Revolving Hopper that reduces your charging time 50%. Its discharge elevation is higher without adding over-all height to the mixer.

That tight-seal revolving hopper—and many other exclusive and practical features—has been job-proved by hard work on many projects. One contractor produced 80,000 cu. yds. with ten HI-BOYS in four months—with nary a leak in the seal or major trouble of any kind.

The Blaw-Knox HI-BOY is really a concrete producer—both in quality and quantity—*it's the truck mixer you have been waiting for.*

Now available in 2, 3 and 4½ cu. yd. sizes. We are ready to equip you with Blaw-Knox HI-BOYS.

Bulletin No. 2223 TELLS ALL . . . send for it

BLAW-KNOX DIVISION of Blaw-Knox Company
2086 Farmers Bank Building • Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Washington • Birmingham
See your nearest Blaw-Knox distributor

BLAW-KNOX
knows how to build TRUKMIXERS

NEW! CLYDE FRAME-4 HOISTS

GASOLINE • ELECTRIC • DIESEL

Brand new hoists . . . new in design, new in performance new in quality and value!

FRAME-4 FEATURES

BALL BEARINGS THROUGHOUT FOR MAXIMUM EFFICIENCY

•

EXCEPTIONALLY RUGGED ALL STEEL BED AND SIDE FRAME

•

SECTIONAL BED READILY EXPANDED FROM ONE TO TWO OR THREE DRUMS

•

CAPACITY--5500 LBS. SINGLE LINE PULL

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DESIGNED FOR GREATEST FUEL ECONOMY

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FACE FORWARD LEVERS WITH OPERATOR'S SEAT ON TWO AND THREE DRUM SIZES

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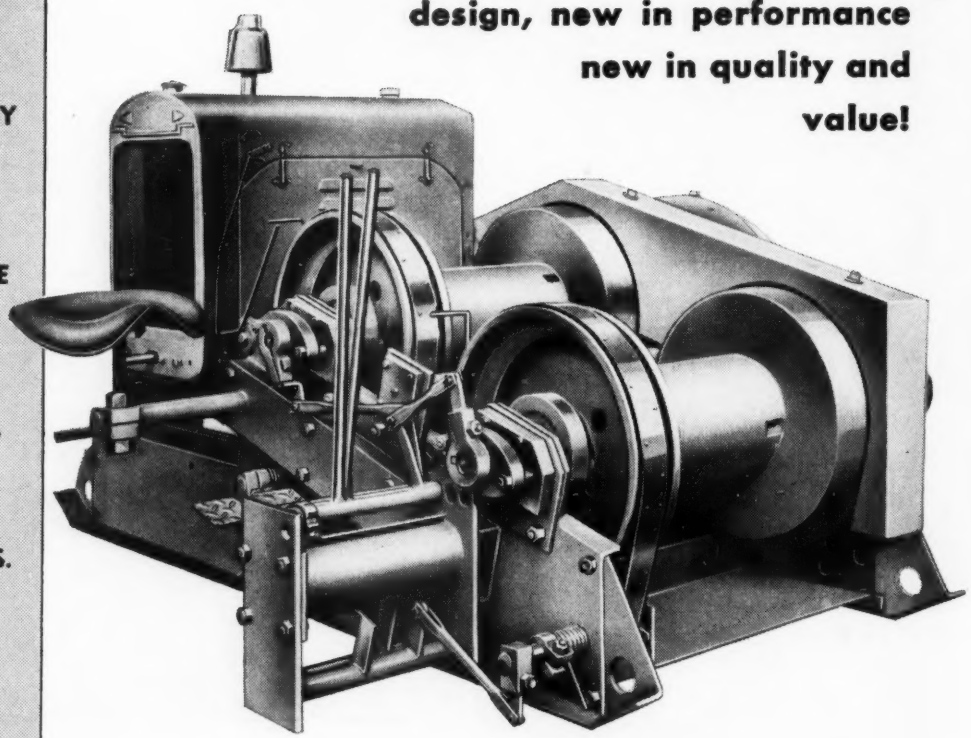


Here is real hoisting value for you . . . a machine scientifically engineered and built to give the utmost in efficiency and service.

Roller bearings minimize friction loss and increase load capacity. All steel bed and side frames provide greater strength and reduce hoist weight. Clyde quality throughout assures long and dependable service. Write for complete specifications.

•

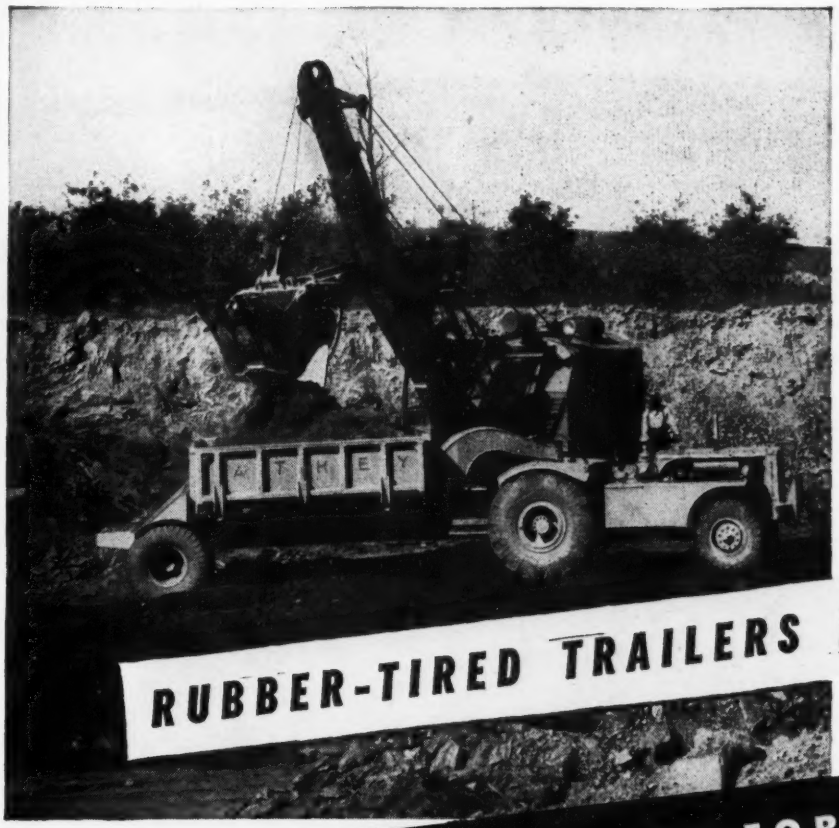
HOISTS • DERRICKS • CAR PULLERS • WHIRLEYS

Clyde Iron Works, Inc.
Duluth 1, Minn.
Please send more information on the new Frame-4 Hoist.
Signed .....
Company .....
Address ..... City ..... State .....

Manufactured By

CLYDE IRON WORKS, Inc.
Duluth 1, Minnesota

A SUBSIDIARY OF Barium STEEL CORPORATION Steelwright to the Nation



Dumping to either side, the speedy Athey PD-10 Rubber-Tired Trailer cuts cycle time. It dumps over the side of the fill with no turning or backing and frequently without stopping. Greater production . . . greater profits! On highway construction or other earthmoving operations, Athey PD-10 and "Caterpillar" DW-10 units have proved to be the fast moving, cost cutting answer for the long hauls.

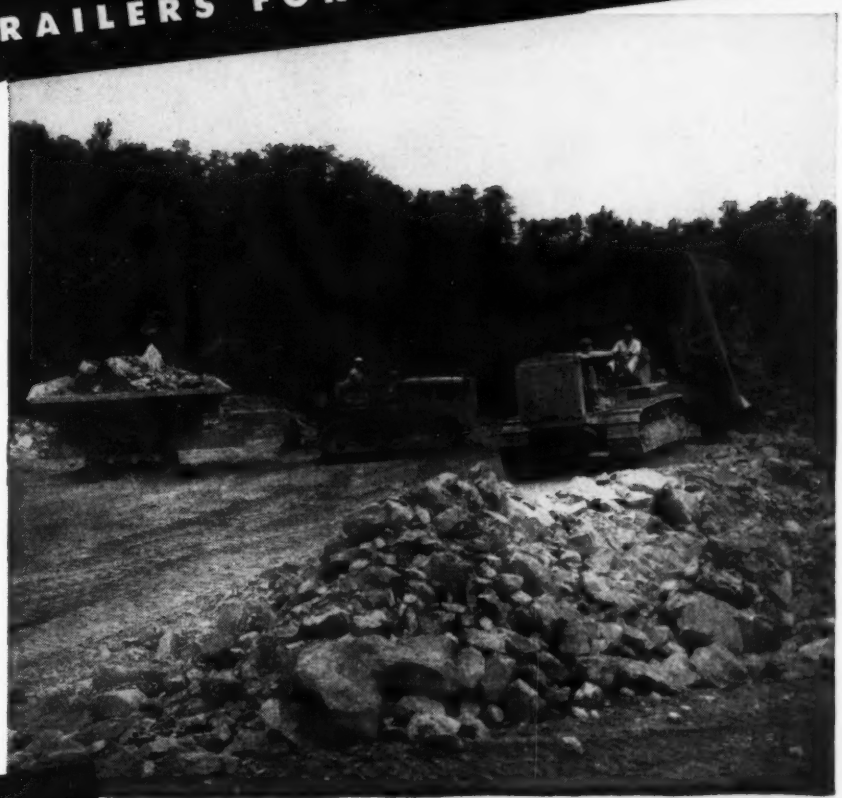
RUBBER-TIRED TRAILERS FOR LONG HAULS!

FORGED-TRAK TRAILERS FOR ROUGH GOING!

When the going's tough . . . mucky, soft, hilly or rocky . . . keep big loads moving with Athey Forged-Trak Trailers. Rolling on broad-footed Athey Forged-Trak Wheels, heavily loaded trailers pass over terrain that is impassible to other units. No delays in bogging down . . . no cutting of tires on jagged rocks . . . just production! Consult your Athey-"Caterpillar" Dealer in choosing the right equipment or write direct to . . .

Athey Products Corporation,
Dept. 38,
5631 West 65th St.,
Chicago 38, Ill.

Athey APCOR Products



Athey

ATHEY PRODUCTS CORPORATION, CHICAGO 38, ILL.

Dependable Hauling and Loading Equipment

ALL THIS IN JUST 14 DAYS!

WEAVER CRANE SERVICE, Inc.
CHARLESTON, W. VA.

traveled 750 miles over mountain roads — set 31 underground storage tanks in

11 West Virginia cities with a single

MICHIGAN TRUCK-CRANE

...half the time required by less mobile equipment!

Weaver Crane Service, Inc., operates throughout the state of West Virginia, placing and removing underground storage tanks for a nationally-known petroleum company. They are highly pleased with MICHIGAN'S truck mobility and stamina on the mountainous roads of West Virginia. In the words of Mr. Albert Weaver, "it has given exceptionally good service . . . Had this work been done with a less mobile machine, the same trip would have taken at least thirty days . . . I am proud of my MICHIGAN Crane."

This is typical of the praise of MICHIGAN Shovel-Crane owners everywhere. Get all the facts about MICHIGAN — ask for your copy of "MICHIGAN ON THE JOB" which graphically shows the wide range of cost-cutting applications of these pioneer mobile shovel-cranes.

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
495 SECOND STREET • BENTON HARBOR, MICHIGAN, U.S.A.

BLACKHAWK

LOCK-ON

Clicks with CONSTRUCTION MEN

"Click" and a Blackhawk Socket Wrench Combination is locked together rigidly and safely. No danger of sockets falling off into machinery or injuring workers. And this patented thumb-release "Lock-On" cuts costs too. It speeds work, prevents sockets from sticking on nuts, and eliminates time wasted in fishing lost sockets from tight, dangerous spots. Ask your Industrial Supply Distributor to show you why only Blackhawk "Lock-On" gives you these advantages.

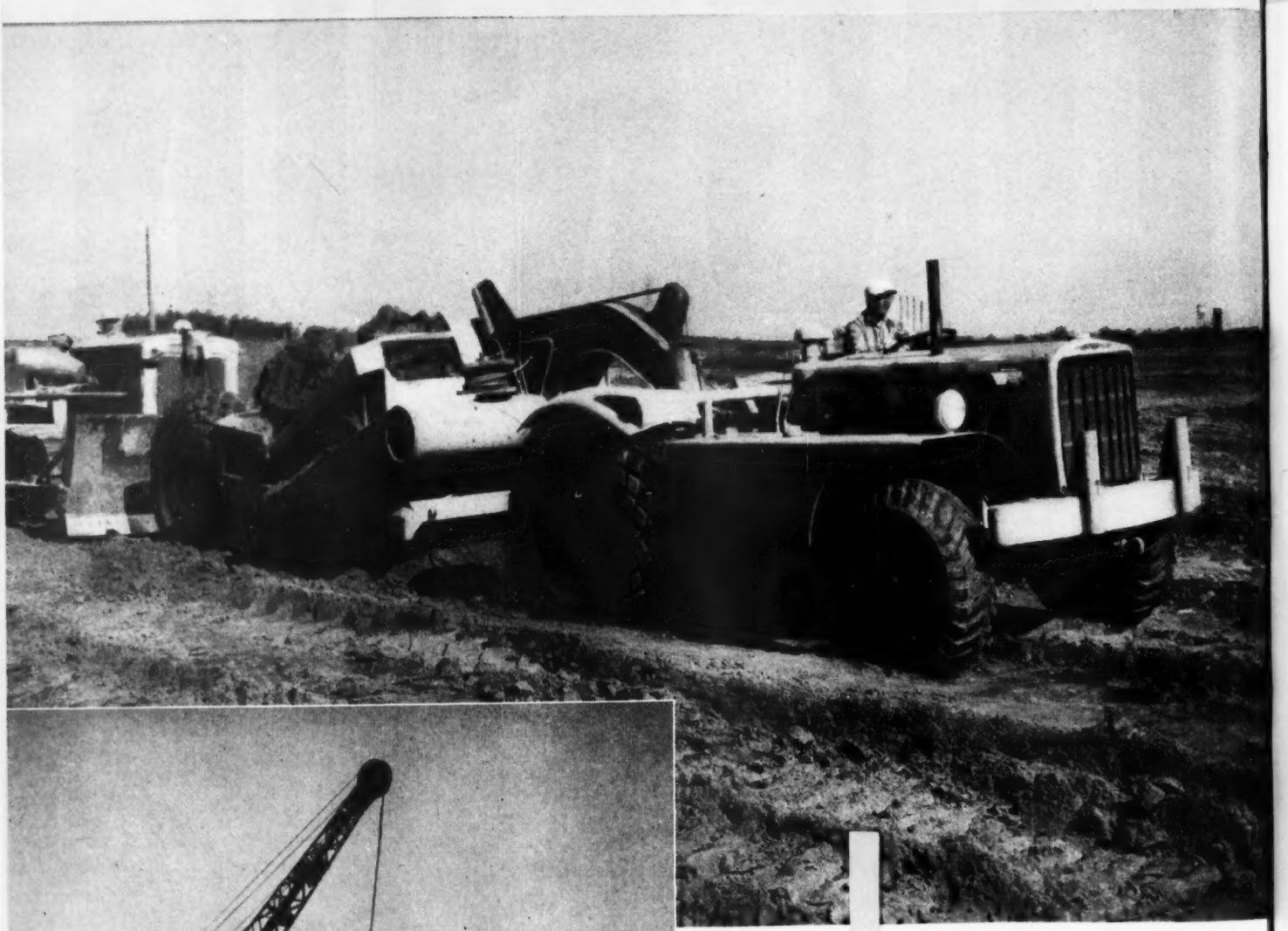
***A Product of* BLACKHAWK MFG. COMPANY, Dept. W-2358, Milwaukee 1, Wisconsin**

For Safety's Sake Always Specify

BLACKHAWK

Socket Wrenches

They're rolling high



FAST-LOADING SCRAPER

BIG-LOAD WAGON

along the levee

Though they're the younger members of a famous line of earthmoving equipment, "Caterpillar" Scrapers, Bulldozers, Wagons and wheel-type Tractors are fully living up to the performance their long planning and careful manufacture have made possible. In the pictures you see them starring on another important project for which they are perfectly fitted—a levee job, near Granite City, Ill., sponsored by the U. S. Army Corps of Engineers and carried out by the McCarthy-Pohl Construction Co.

Here "Caterpillar" DW10 Tractors pull No. 10 Scrapers and speed them to destination at 18 m.p.h. Ten trips per hour on an 1800-ft. haul prove their fast "get-there-and-back." From dragline loadings they pull W10 Wagons with the same high efficiency.

It's a typical example of matched-equipment teamwork in the most modern manner!

Are *you* thoroughly acquainted with the features of these sturdy, matched machines—and with the high promise of success they hold for the wide-awake contractor? Your "Caterpillar" dealer will gladly give you the whole interesting story.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

Typical standard model prices (F.O.B. Peoria, subject to change without notice): DW10 Tractor, $8830; W10 Wagon, $4190; No. 10 Scraper, $5200.

FAST HAULING

EASY DUMPING

EASY SPREADING

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL

ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

Le Roi Announces the 31 Clay Digger

— with new design features that reduce both digging and upkeep costs

Here's a digger that has everything you want. Just take a look at all these design advantages:

● **Short 19-inch length** — is responsible for the fine easy-handling balance of the new 31 clay digger.

● **It weighs only 18 pounds** — A man does more work with the new Le Roi 31, and uses less effort.

● **Exclusive new buffer design saves time and money** — This new buffer consists of molded rubber bonded to hardened split steel rings. There is only one piece to handle. Changing tools requires just a few seconds and no effort at all. Your operator does more digging.

● **Air consumption is low, efficiency high** — The 31's new trouble-free valve design uses air sparingly. The high efficiency — that is, the 31's ability to produce a lot of work — is made possible by a unique arrangement of valve-chest differentials.

● **Only the 31 has an integrally-built lubrication system** — Oil from a large reservoir in the handle is metered into the live air stream and carried to every working part.

● **The 31 is sealed from dirt and grit** — the new rubber buffer keeps destructive foreign matter out of the digger.

● **Cylinder life is greatly increased by the use of renewable spacer and chuck bushings** — Moreover, the handle, cylinder, and retainer are made from sturdy drop forgings. That is why Le Roi 31's serve you efficiently for years.

Give your men a clay digger that they like to use — give them a digger that makes them more productive — give them Le Roi 31's.

Your nearby Le Roi distributor can show you how the 31 Clay Digger design pays off in lower costs. Write us for specifications and latest literature.

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

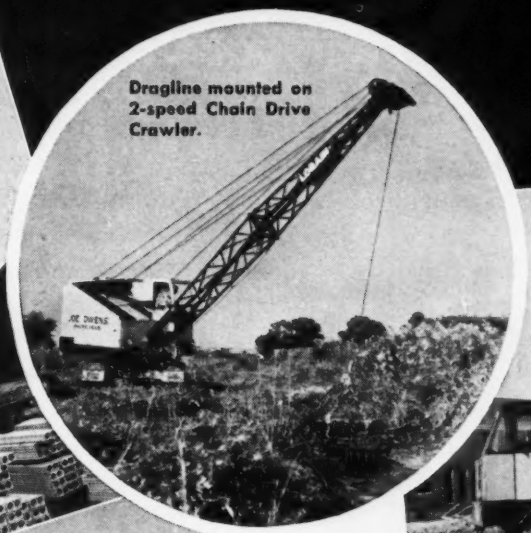
NEW YORK • WASHINGTON • CLEVELAND • BIRMINGHAM
TULSA • BUTTE • SAN FRANCISCO

RD-16

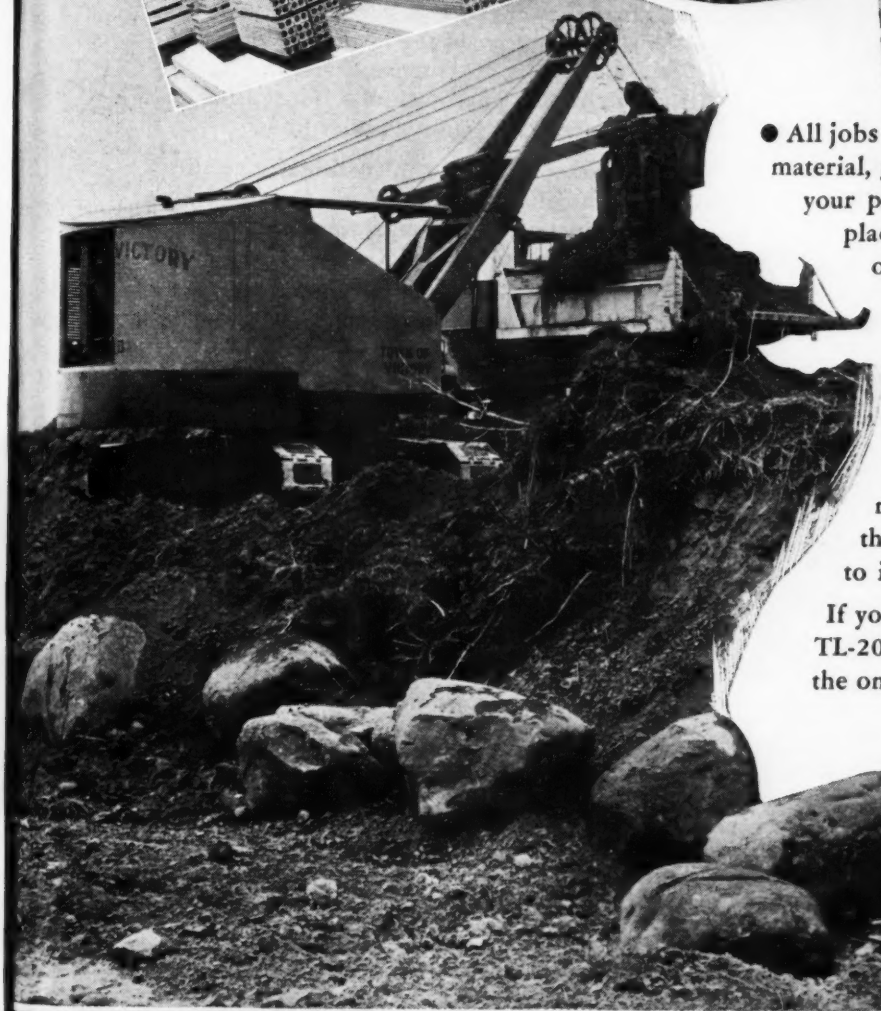
Le Roi 31 Clay Diggers give you a good opportunity to reduce your digging costs

The TL·20 offers 50 combinations and 1000 profit possibilities

Single engine, Self-Propelled TL-20 rubber-tire crane.


Dragline mounted on 2-speed Chain Drive Crawler.

Rubber-tire Moto-Crane plus gooseneck hoe boom.



● All jobs are not the same; they vary in conditions, size, material, ground or travel conditions. It's important to your profits to have the right machine in the right place at the right time. That's why the selection of a Lorain TL-20 for today's job is your protection against tomorrow's ever-changing requirements.

With the TL-20 you have the choice of 50 working combinations—10 mountings and 5 interchangeable booms. And, remember, every one is a flexible combination. You can not only switch booms in a jiffy but because of the TL-20's modern Unit Assembly it's possible to interchange mountings as well.

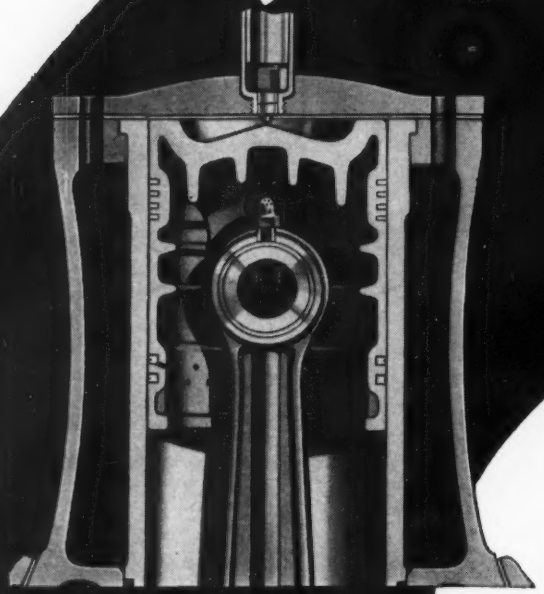
If you're one to plan ahead, plan now to see the TL-20 at your local Thew-Lorain distributor. It's the one high production unit in the ½ yd. class that can fit itself to both today's jobs and those of the future.

THE THEW SHOVEL COMPANY
Lorain, Ohio

Lorain® Thew TL 20 Lorain

What are the advantages of "true" diesel operation?

- Lower Operating Cost
- Easier Starting
- Smoother Operation
- Greater Dependability
- Longer Service Life



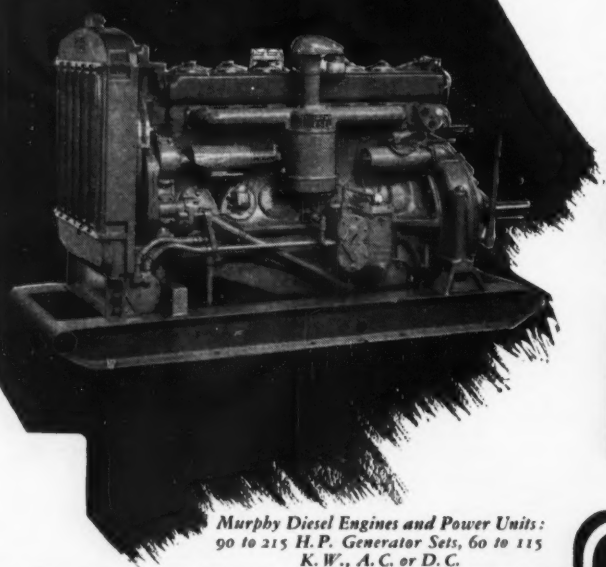
The Murphy Diesel is a "True" Diesel

Above—The combustion chamber of the Murphy Diesel is plain and open—no elements to create excessive turbulence. The unit injector sprays completely atomized fuel directly into all parts of the air charge.

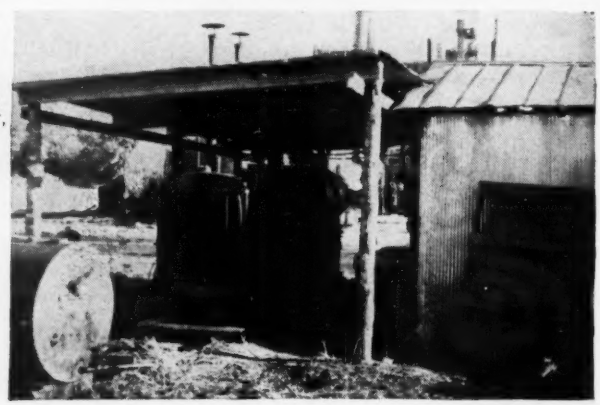
The Murphy Diesel is a "true" diesel—solid fuel is injected into a plain, open combustion chamber. There is no artificially created turbulence to accelerate the transfer of heat. More of the heat of compression is available for instantaneous starting . . . less of the heat of combustion is transmitted to pistons, valves and cylinder liners.

"True" diesel operation in combination with precisely controlled Murphy Unit Fuel Injection makes it possible to get maximum power out of every gallon of fuel. Get full details today—ask for a copy of the booklet *"7 Questions to Ask a Diesel Engine Salesman"*

MURPHY DIESEL COMPANY
5339 West Burnham Street, Milwaukee 14, Wisconsin



Below—This Model ME-6 Murphy generator set owned by Smith Engineering and Construction Co., Pensacola, Florida, supplies power for a Cedarapids hot-mix plant.



Murphy Diesel Engines and Power Units: 90 to 215 H.P. Generator Sets, 60 to 115 K.W., A.C. or D.C.

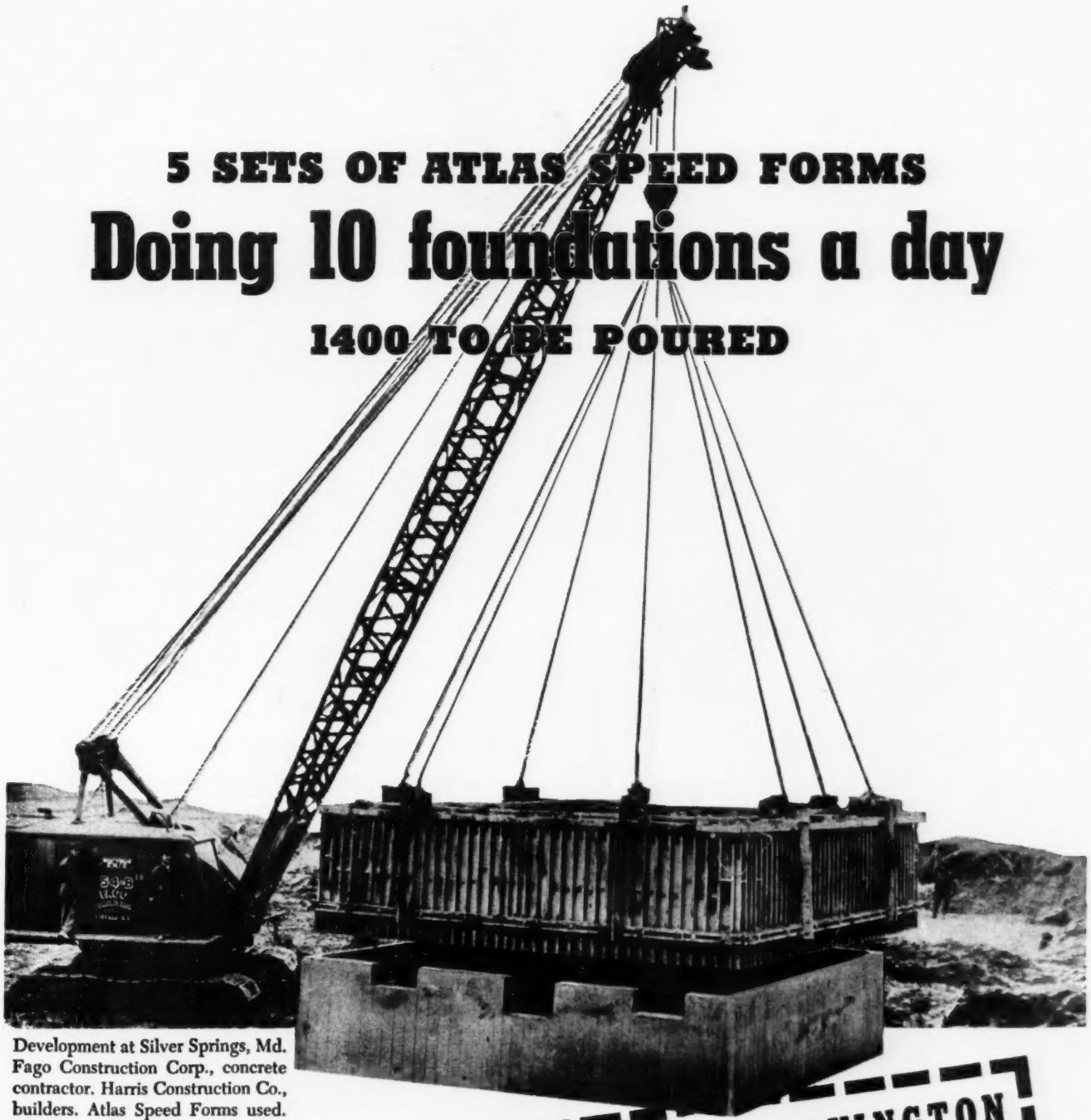
LOWEST ULTIMATE POWER RATE

MURPHY DIESEL

5 SETS OF ATLAS SPEED FORMS

Doing 10 foundations a day

1400 TO BE POURED



Development at Silver Springs, Md. Fago Construction Corp., concrete contractor. Harris Construction Co., builders. Atlas Speed Forms used.

THE forms for the entire foundation, four walls, inside and outside, were assembled and concrete poured complete for the whole unit. When the concrete had set, the complete form was picked up by crane and walked to the next site, ready for the next pour.

The coupon will bring you more information about ATLAS SPEED FORMS, hand or crane handled, with large savings using either method.

IRVINGTON FORM & TANK
CORPORATION IRVINGTON, NEW YORK

Address mail inquiries to Irvington Office.

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IRVINGTON FORM & TANK CORPORATION
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Please send me information on Atlas forms. I am particularly interested in forms for _____

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How much... how far?

That's all you specify!...
with Pioneer Super-Service Conveyors

Here's a new, simple way to order conveyors. It saves you time and money. It assures the most satisfactory conveyor for your job.

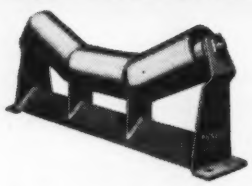
It's as easy as this. Tell Pioneer what material you want to move—how much—how far—and Pioneer takes care of all engineering details. You are assured of a Super-Service Conveyor pre-engineered to handle a *maximum load at the maximum incline.*

These new, standardized conveyors range in length from 30 to 120 feet—in five foot increments. Shipped knocked down or partially assembled, Super-Service Conveyors arrive on your job straight and true—ready for quick assembly. They save hours of set up time—meet varied conditions of lift.

For special jobs and fixed installations, Pioneer makes job-engineered conveyors. Write now for complete details.

PIONEER ENGINEERING WORKS

1515 Central Avenue — Minneapolis 13, Minnesota



For Longer Life... Lower Upkeep

- ***All welded steel idler*** supports for strength with light weight.
- ***Inverted base angle*** on idler supports for self cleaning.
- ***Dependable Timken bearings*** for lasting performance.
- ***One-shot Alemite fittings*** with labyrinth seals retain grease, keep out dirt.
- ***Troughing idlers tilted*** in direction of travel—keep belts straight and true.
- ***Lattice frame construction*** for strength and rigidity.

BUY BOTH—

Higher Output, Lower Upkeep!

Pioneer

Continuflo **EQUIPMENT**

Put tomorrow's dreams on a solid foundation . . . with MONOTUBES

JOB-PROVED — economy-proved — quality-proved . . . that's Monotube tapered steel piles. And that's why so many construction projects *start* with Monotubes.

Experienced architects and builders have long depended upon them because—

Monotubes' fluted, tapered design speeds driving;

They are easily extendible, right on the job;

Their sturdy construction eliminates use of driving mandrel;

Light in weight, they are easily and quickly handled;

Monotubes' tubular construction makes inspection, before concreting, quick and easy.

Plan a solid foundation *now* for tomorrow's projects—buildings, piers, bridges, airports, highways — with *Monotubes.* They can make the time-and-cost-savings you want. Gauges, sizes and tapers to meet varying soil conditions. For complete information, write The Union Metal Manufacturing Co., Canton 5, Ohio.

We regret the present extended delivery schedules due to the steel shortage, but you will find Monotube Piles well worth waiting for.

UNION METAL

Monotube Foundation Piles

Preformed . . .
Preformed wire rope extends its influence far across the whole industrial world.
Because each of its components is preformed to its ultimate form, preformed wire rope is comparatively stress-free. It can work with all its strength — longer. Ask your own wire rope manufacturer or distributor for Preformed.
Write to the Preformed Wire Rope Information Bureau, 520 N. Michigan Avenue, Chicago 11, for an illustrated booklet telling the complete story of Preformed Wire Rope.

For every demolition job...

CP-113

there's a CP demolition tool

The new CP-113 completes the world's largest line of demolition equipment — there is a CP tool exactly suited for every type of demolition work.

CP-111 (25 lb. class). For lateral or overhead work where light weight is essential; for tearing down walls where precarious footing makes use of heavy tools dangerous.

CP-113 (35 lb. class). For light demolition jobs, the light weight and fine balance of this tool makes rapid operation easy. Also useful for lateral or overhead work.

CP-115 (60 lb. class). A general utility demolition tool, with ample power for any but the heaviest duty; also suitable for spike driving.

CP-116 (80 lb. class). Delivers a fast, powerful blow, adapting it for cutting and breaking heavy asphalt and medium weight concrete, for demolishing foundations. Makes an excellent sheeting driver.

CP-117 (80 lb. class). Striking a slower, but much heavier blow than the CP-116, this tool is designed for use in hard, dense concrete, and other medium-to-extremely hard material. As a spike driver it's unbeatable. There's no job too tough for the CP-117.

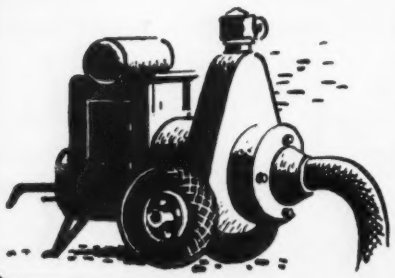
CP-113 Demolition Tool; 35 lb. class. Available with double-grip or closed handle, spring-type or latch retainer.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

AIR COMPRESSORS • ELECTRIC TOOLS • PNEUMATIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

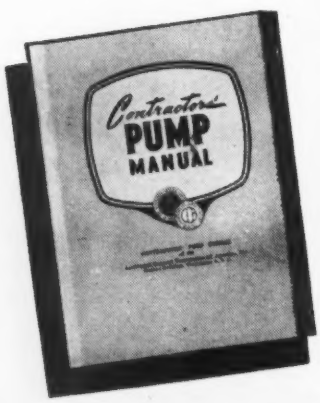
NEW AND GREATER PUMP PERFORMANCE AT HIGHER HEADS WITH THIS A.G.C. RATING PLATE!



THIS A.G.C. Rating Plate, mounted on the pump you buy, now means increased performance, greater output at higher heads — and more, much more, for your money!

New and higher Standards for pump performance have been set by the Contractor's Pump Bureau. For example: A pump rated at 20M formerly was warranted to deliver 40 G.P.M. at a 10 ft. Static Lift and Head of 80 ft. The same pump is now warranted to deliver 90 G.P.M. at the same head and lift — an increase of more than 100%.

All pumps made by the Member Manufacturers listed below will meet these new and forward-looking standards as set by the Contractor's Pump Bureau. And remember, only the pumps manufactured by these Companies carry the A.G.C. Rating Plate. Look for this A.G.C. Rating Plate on every pump you buy. It means the utmost in assured pumping performance!

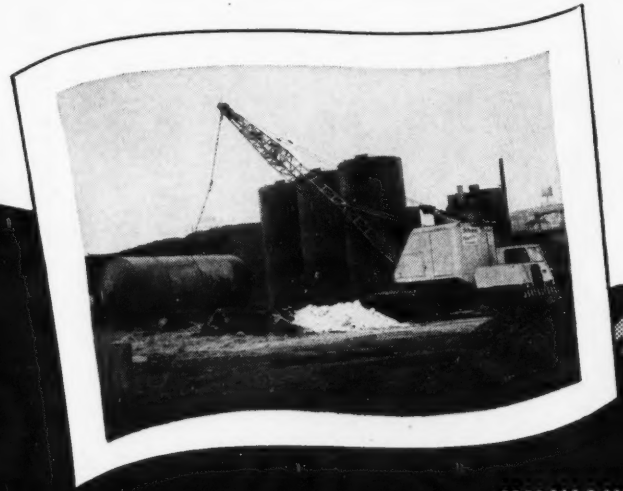


PUMP USER'S MANUAL

Forty pages packed full of useful information for the pump user. Answers all questions as to pump selection for the job — what size pump to use — the do's and don'ts of pump operation — standards for measuring heads and capacities — and other technical data. Contact your dealer or write any of the companies listed below for your copy.

CONTRACTORS PUMP BUREAU
(ESTABLISHED 1938)
Affiliated with
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
Munsey Building, Washington 4, D. C.

NOVO ENGINE COMPANY, Lansing, Michigan
STERLING MACHINERY CORP., Kansas City, Mo.
WORTHINGTON PUMP & MACHINERY CORP., Holyoke, Mass.
BARNES MANUFACTURING CO., Mansfield, Ohio
CARVER PUMP COMPANY, Muscatine, Iowa
C. H. & E. MANUFACTURING CO., Milwaukee, Wisconsin
CHAIN BELT COMPANY, Milwaukee, Wisconsin
CONSTRUCTION MACHINERY CO., Waterloo, Iowa
THE GORMAN-RUPP CO., Mansfield, Ohio
THE JAEGER MACHINE CO., Columbus, Ohio
MARLOW PUMPS, Ridgewood, N. J.



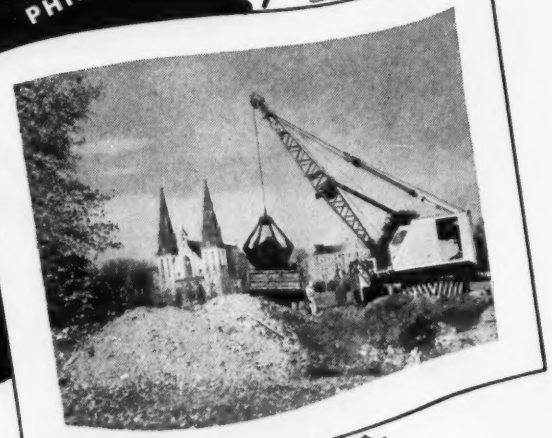
CRANEMOBILE VERSATILE PERFORMER FROM COAST TO COAST!

MILWAUKEE

PHILADELPHIA

LONG BEACH

From the seaboard states of the East to the oil-rich soil of the West Coast, Bay City CraneMobiles are moving materials of every sort *with maximum speed and minimum cost.* Illustrated, fully rated 20-ton capacity Model 180 at work on three different operations. Hundreds of other CraneMobiles *handle everything from drag line to steel erection.* See your Bay City dealer or write direct.



BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS • BAY CITY SHOVELS, INC., BAY CITY, MICHIGAN

SEE YOUR NEAREST DEALER FOR BAY CITY EXCAVATING AND MATERIAL HANDLING EQUIPMENT IN SIZES FROM ⅜ TO 1¼ YARDS HAVING CRANE RATING UP TO 20 TONS. BOTH CRAWLER AND PNEUMATIC TIRE MOUNTING.

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TURNBUCKLES
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BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by
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BETHLEHEM STEEL

Bethlehem supplies every type of Fastening

UNI-FORMS are UNIVERSAL!

They're working EVERYWHERE on EVERY type of construction

RENTAL HOUSING

Builders: M. Shapiro & Son

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Builders: Concrete Form & Constr. Co.

Builders: The Austin Company

BRIDGE PIERS

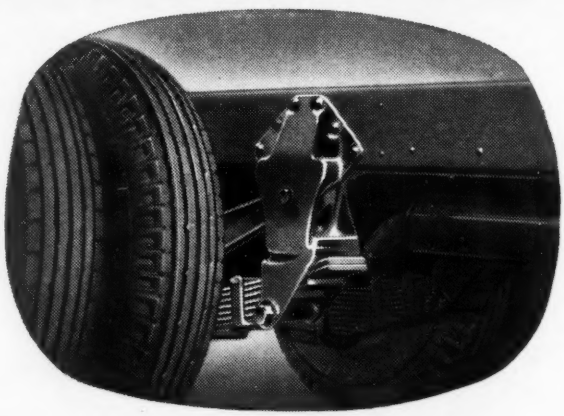
Builders, Inc.

Builders, Inc.

Builders, Inc.

What It Takes FOR HEAVY HAULING

When you buy a GMC for heavy hauling you get a truck that's heavy duty and all truck. GMC heavy duties have big, brawny frames . . . with wide, thick-leaved springs to match. They have heavy, husky axles and transmissions that combine to provide as many as 15 forward speeds . . . brakes up to 21 inches diameter . . . heavy disc clutches. Engines are powerful valve-in-heads . . . with extra heavy Tocco-hardened crankshafts and many other durability features. Yes, GMC heavy duties have "what it takes" . . . and many models are now available for quick delivery.



The massive frame, heavy springs and rugged radius rod drive of this dump model typify GMC heavy duty truck design. GMC heavy duties are built in gross weight ratings of 19,000 to 90,000 pounds, for every hauling job. See your GMC dealer.

THE TRUCK OF VALUE

GASOLINE • DIESEL

GMC TRUCKS

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION • PONTIAC, MICHIGAN

You can earn up to $30 extra per day on wheelbarrow jobs with

The BELL Prime Mover*

This new motorized unit handles half-ton loads of sand, gravel, concrete mix...quickly...with little physical effort...at a new low cost.

One *Prime Mover* does the work of four men with wheelbarrows...can save the time of three men at $10 each per day.

Where the ordinary wheelbarrow is limited to light loads, smooth going, and level surfaces, the *Prime Mover* takes loads up to half a ton over rough ground...through ankle-deep mud... up 20% grades. Its 10-cubic-foot bucket (18 with sideboards) is ideal for any bulky, heavy materials commonly moved by wheelbarrow.

And every workman who uses the *Prime Mover* likes it. We know of plants where the *Prime Mover* has to be locked up to keep it out of unauthorized hands.

Even "old timers" are delighted with the *Prime Mover*, for it enables them to keep up with the husky young fellows. One *Prime Mover* booster is a 68-year-old foundry worker who now can move 100 tons and more of sand every day without working up a sweat.

We can give you plenty of additional facts on *Prime Mover* economics...how it reduces overtime...how it speeds up construction jobs. You can get these data by sending in the coupon.

FEATURES:

- takes half-ton loads up 20% grades
- bucket holds 10 cu. ft. . . . 18 with ideboards
- gear driven...no belts or chains
- fully enclosed engine protected against dirt and moisture
- clutch, engine, transmission all run in oil
- half-ton platform body available; also 50-inch "baby bulldozer" blade
- switch from bucket to platform without tools...in less than a minute
- turns in its own length (63½"); width 31½"
- 3-gallon tankful of fuel gives 8 hours continuous service

A PRODUCT OF BELL *Aircraft* CORPORATION

★ PATENTS & T. M. REG. PENDING. COPYRIGHT, 1948

SEND COUPON NOW

Bell Aircraft Corporation
P. O. Box 1C5, Buffalo 5, N. Y.

Please send me engineering data, costs and operating experience on the *Prime Mover*.

Name .....

Company .....

Address .....

City, Zone & State .....

MOBILE LINK-BELT SPEEDER K-360

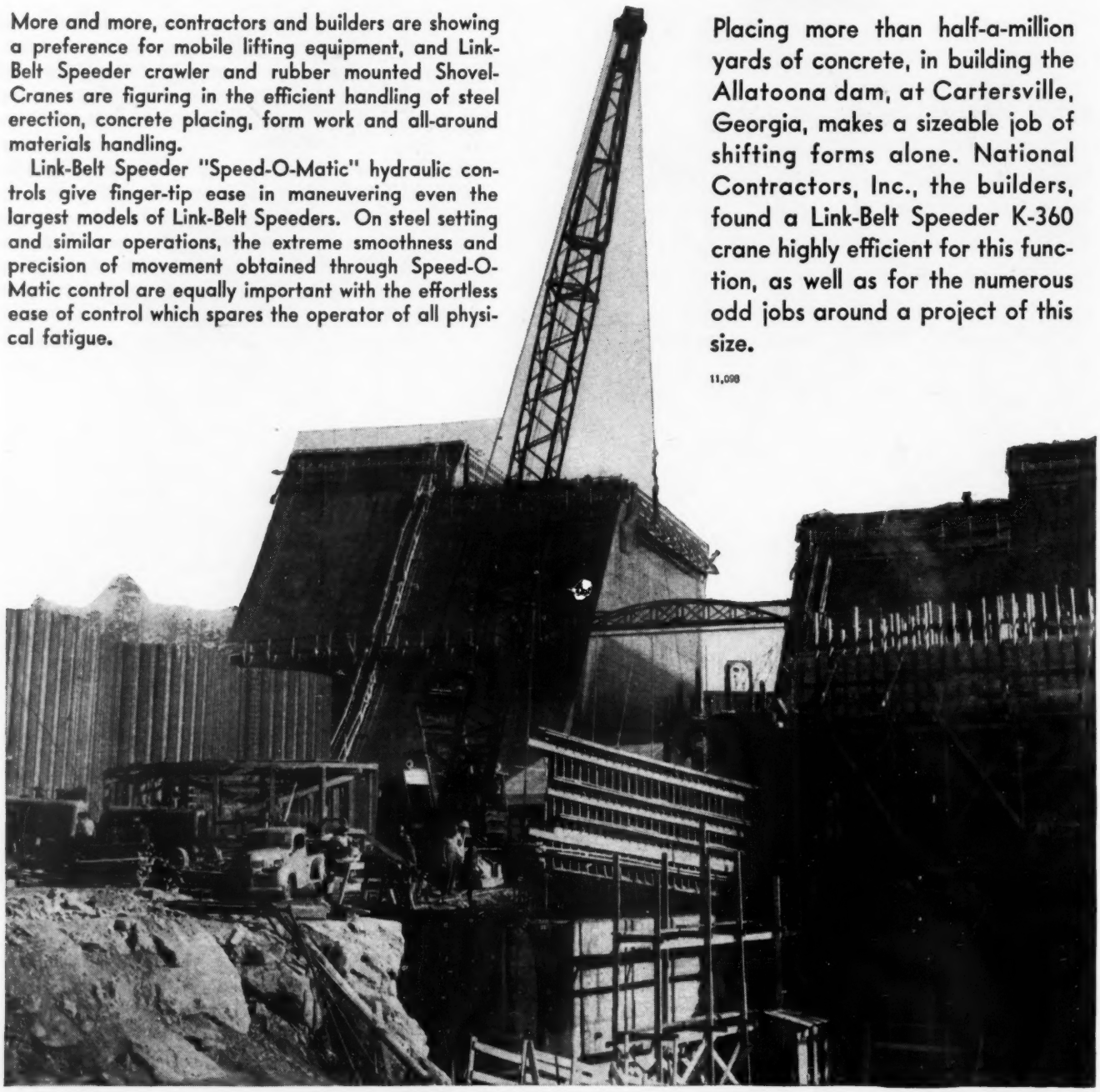
WORKS TRUE TO FORM

More and more, contractors and builders are showing a preference for mobile lifting equipment, and Link-Belt Speeder crawler and rubber mounted Shovel-Cranes are figuring in the efficient handling of steel erection, concrete placing, form work and all-around materials handling.

Link-Belt Speeder "Speed-O-Matic" hydraulic controls give finger-tip ease in maneuvering even the largest models of Link-Belt Speeders. On steel setting and similar operations, the extreme smoothness and precision of movement obtained through Speed-O-Matic control are equally important with the effortless ease of control which spares the operator of all physical fatigue.

Placing more than half-a-million yards of concrete, in building the Allatoona dam, at Cartersville, Georgia, makes a sizeable job of shifting forms alone. National Contractors, Inc., the builders, found a Link-Belt Speeder K-360 crane highly efficient for this function, as well as for the numerous odd jobs around a project of this size.

11,098



LINK-BELT SPEEDER

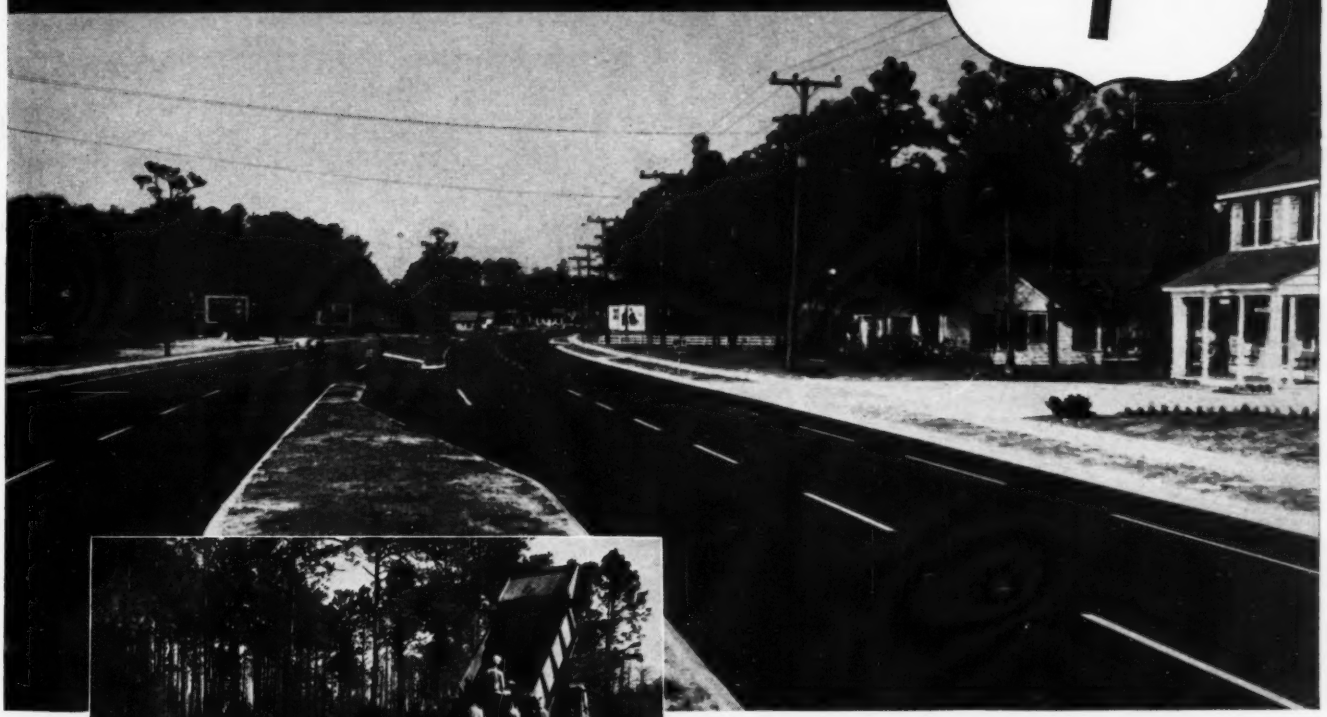
LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES

In the Link-Belt Speeder line of twenty-five models there is a size and type for every purpose. Your near-by distributor can aid you in selecting a size and type to meet your exact needs. He has facilities and trained personnel to keep your equipment in tip-top operating condition.

Florida paves 16½ miles of U. S. 1

Resilient, heavy-duty TEXACO ASPHALTIC CONCRETE *was laid on this major national highway*



A two-course Texaco Asphaltic Concrete pavement with fine-graded top has been laid on 16½ miles of U. S. 1 south of Jacksonville. New construction was used for the first mile, or so-called "model mile", shown in the large photo. On the other 15½ miles, worn concrete was widened and resurfaced with Texaco. The Duval Engineering and Contracting Company of Jacksonville was the contractor.

One of the country's busiest highways, U. S. Route 1 stretches from northern Maine to southern Florida through 14 States and the District of Columbia. Traffic is heavy. In addition to the steady stream of tourist traffic bound for resorts up and down the east coast, it includes numerous trucks loaded with products of every description.

When the Florida State Highway Department paved a 16½-mile stretch of U. S. 1 south of Jacksonville last year, the wearing surface constructed on this heavily travelled route was fine-graded Texaco Asphaltic Concrete. This hot-mix, hot-laid type of Texaco paving has been demonstrating its durability and low upkeep cost under heavy traffic for more than 40 years. Many examples of Texaco Asphaltic Concrete paving, down more than a quarter of a century, are still giving excellent service.

Refined from carefully selected crudes, Texaco Asphaltic products include a material exactly suited to every street construction and maintenance need. A Texaco representative, who is an Asphalt specialist, will help you choose the asphalt improvement which offers the best and most economical solution to your street or highway problem. Write our nearest office if you would like him to call and discuss your problem with you.

BETTER ROADS FOR A BETTER WORLD — 45th Annual Convention and Road Show — SOLDIER FIELD CHICAGO — JULY 18-24, 1948

Booth No. 1027

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

TEXACO ASPHALT

Rolls Up the Yardages

Cuts Down the Costs

EARTH MOVER ALL-WEATHER
for drawn vehicles and general traction

• • •

BUY and SPECIFY GOODYEAR—*it pays!*

HERE's the tire that moves big loads at rock-bottom costs—*because it's designed and engineered for just that work.* It's Goodyear's Earth Mover All-Weather—the "*right*" tire for the wheels of drawn vehicles, or for general traction. "*Right*" for rolling, because its wide, rounded contours provide maximum flotation, prevent deep pentration of the ground surface, reduce skids and slippage, give sure-footed, *easy* going.

Fact is, Earth Mover All-Weather Tires—like *all* Goodyear work tires—are first choice with users. And they *stay* first choice because they keep on delivering low-cost, long-life performance. That's why year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind!*

All-Weather, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company

A RIGHT TIRE FOR EACH JOB

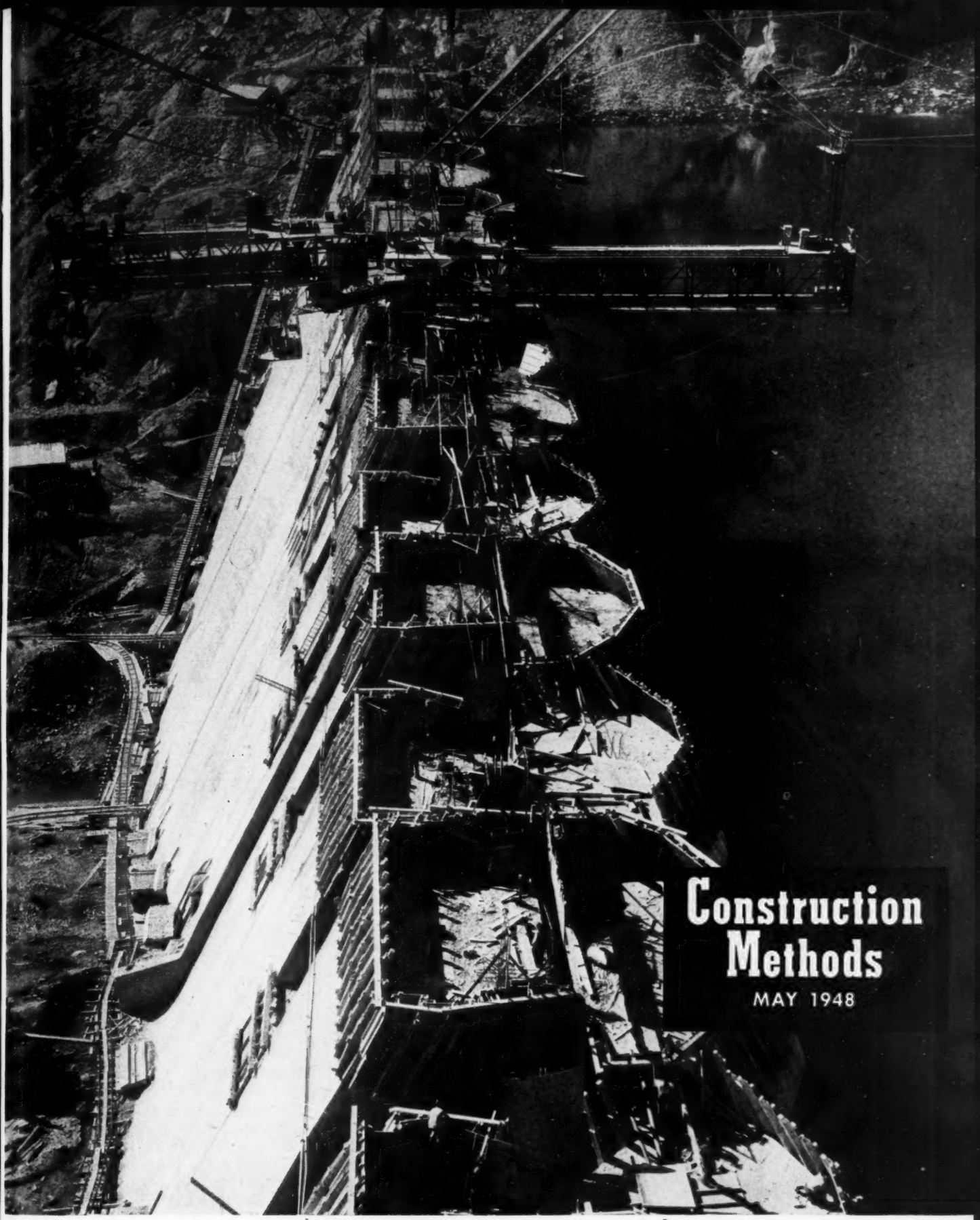
SURE-GRIP
for maximum traction on drive wheels

HARD ROCK LUG
for super-stamina in all rock work

GOODYEAR

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

BETTER ROADS • FOR A BETTER WORLD • 45th Annual Convention and Road Show SOLDIER FIELD CHICAGO JULY 18-24, 1948



Construction Methods

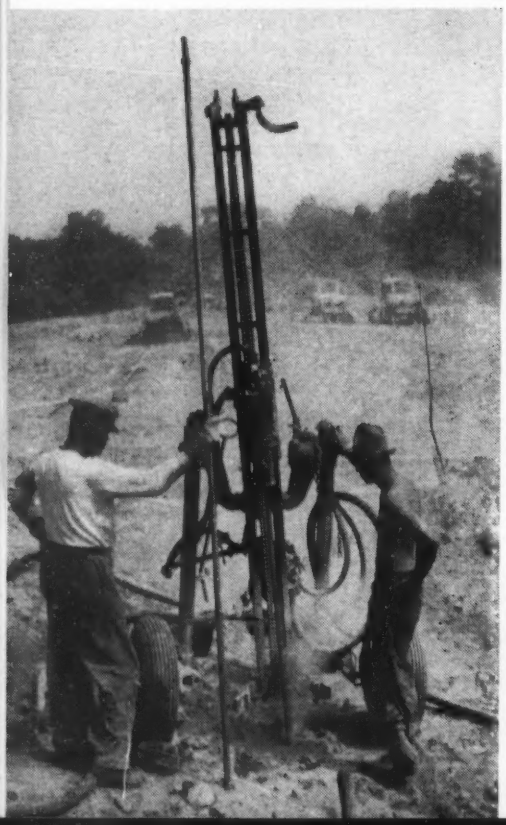
MAY 1948

Cableways Galore on Swiss Dam

SWISS CONTRACTORS go in for cableways in a big way, as this shot of Lucendro Dam at St. Gotthard shows. To reach all parts of the buttress-type structure, 200 ft. high and 900 ft. long, from cableway fixed on the main axis, Locher & Co., Zurich contractors, installed two additional cableways supporting transverse carriages. The carriages can be spotted just above the forms. Concrete, dumped from bucket on the main cableway into hoppers at the inner end of the carriages, is transferred to cars for final disposition through short spouts direct to the forms. Locher, associated with Ed. Zublin & Co., will use the same idea on big Handeck No. 2 dam, just getting started, except the transverse cars will be replaced by belt conveyors.

ON 375,000-YD. EXCAVATION JOB at Franklin Delano Roosevelt Veterans' Hospital near Peekskill, N. Y., trio of Worthington wagon drills sinks downholes at top of face while two others, belly down, drift lift holes at toe for more efficient blasting of tough rock.

Rocky Going on Biggest Vet Hospital



DRILLER WAITS with fresh steel so little time will be lost replacing dulled bit on this hard-working Ingersoll-Rand drill whose dust almost obscures three Worthington compressors.

BY GETTING OFF to a flying start with the right equipment and plenty of it, Mt. Vernon Contracting Corp., Mt. Vernon, N. Y., kept its $3,000,000 excavation subcontract on a fast schedule at the 1,984-bed Franklin Delano Roosevelt Veterans' Hospital, the country's largest. Faced with an unusually tough rock problem, the contractor pre-tested various drilling equipment on another project with a similar geological formation to insure a well-equipped job ready to go into high gear immediately upon moving on the hospital site.

The $22,400,000, 31-building hospital, on a 380-acre site on the Hudson River near Peekskill, N. Y., is being built by the New York District, Corps of Engineers. Major construction contracts of $17,500,000 and $4,100,000 are held respectively by Merritt-Chapman & Scott Corp., New York City, and Fred J. Brotherton, Hackensack, N. J., for both of whom Mt. Vernon was subcontractor for excavation, roadbuilding and subsurface utilities.

About half the 375,000 cu. yd. of excavation was a rock formation known as Cortlandt Series—an extremely dense cap layer of hard basic igneous rock with shattered blocky rock beneath. Emery in the upper layer dulled drill bits after only a few inches' progress, while excavation below the cap was complicated by local weathering of softer rock blocks that resulted in deep clay and silt pockets bounded by almost shear cliffs of sound rock. As all excavation pits for

SAFETY COMES FIRST, so area where blast holes are loaded is roped and flagged (left, above), and blaster's dynamite box (right, center) carries prominent sign.

column foundations (some 160 in a typical building) were carried down to sound rock, this meant that footing base levels often varied more than 20 ft. within a single structure.

Aware of these subsurface conditions, Mt. Vernon put test drills to work on another contractor's sewer job to determine the method of attack and what equipment—and how much—would be needed for efficient progress. They finally equipped with 18 wagon drills supplemented by 25 hand drills, all powered by 18 portable compressors delivering a total of 8,445 cfm. Equipment was predominantly Worthington with some Ingersoll-Rand, Gardener-Denver and Chicago Pneumatic. Working with them were nine shovels and backhoes ranging from ½ to 2½ yd. and including six Northwests, a Byers, a Marion and an Insley.

After stripping 60 acres with shovels and eight Caterpillar-drawn 15-yd. Carryalls, rock was drilled and blasted. Except for about 2 percent lift holes, wagon drills downholed on 4-ft. centers, drilling 14 ft. to pull 12. Bits were war surplus I-R detachable Jackbits on 1⅝-in. hollow round steel in 5-ft. multiples, each change reducing ⅛ in. Because of the hard rock, bits averaged only 1 ft. of hole before dulling, but each wagon drill made 100 to 250 ft. of hole per 8-hr. day. Hand drills operated where the wagons couldn't get footing on rugged slopes, and in trench bottoms and foundation pits below general excavation level. They also broke up large rock after primary blasting.

Holes were loaded with 3 to 5 lb. of Gelex No. 1 in 1¼x8-in. sticks, and were series wired for blasting in 2,000- to 4,000-lb. shots. Maximum hole loading was 11 sticks; maximum blast 800 holes. Shots were fired electrically, without delay exploders, by a 6-kw. Universal generator. Powder consumption averaged ¾ lb. per yd. Blasted rock was shovel-loaded into Mack and Euclid rear-dump trucks for disposal in fills.

Safety was the keynote on blasting, and there were no lost-time accidents. Open blasts were set off after working hours with all equipment pulled back at least 500 ft., while shots near buildings were matted. Blasting areas were roped off and flagged during and after loading of holes. Only a day's supply of dynamite was brought to the field magazines, with the rest kept in a 5-ton storage powderhouse far from the excavation area.

Included in Mt. Vernon's contract was 90,000 lin. ft. of utility trench with 65,000 yd. of excavation, 90 percent rock. To drain the site,

FOR EASY MOVING, Universal generator is mounted on welded frame hooked to Isaacson Trackdozer on International TD 14 tractor that spots it where needed to fire blast.

ROCK AND DIRT from blast are loaded out by 2-yd. Northwest 78-D shovel and hauled by Mack and Euclid trucks. Driver stands clear for safety.

OVER THE TOP goes Caterpillar D7 bulldozer feeding blasted rock to shovel on other side of 12-ft. blast face. This is one of nine Caterpillars on job.

main storm sewers were put through before general excavation. For these, trenches 20 to 30 ft. deep were blasted, then excavated by backhoes. As the backhoes had a maximum 24-ft. reach, deep trenches were excavated in 2 lifts, with the rigs finally operating on the bottom of the first cut and casting up to ground level. Only a narrow trench was needed for drain installation, but backhoes required a 12-ft. width for second-lift operation. To avoid over-excavation, this 12-ft. first cut was bottomed at final site grade, and backhoes in it dug the lower narrow trench for pipe.

Despite tough rock, deep trenches and many foundation pits, the well-equipped job kept to schedule, with 1,600 yd. of rock coming out daily. Mt. Vernon Contracting Corp.'s four Petrillo brothers—Adam, Arthur, Edward and Felix—gave the work their general supervision, and John G. McFall was superintendent, assisted by Philip G. Fox and Albert F. Shields. Dr. Jacob Feld, New York City, was consulting engineer on all technical and planning problems. For the Corps of Engineers, Col. Charles F. Williams is district engineer, Joseph A. Rooney is chief of the construction division and Robert L. Donnelly is resident. Norman Eastwood and Charles Coates are project managers for Merritt-Chapman & Scott and Fred J. Brotherton, respectively.

BACKHOES (below) excavate blasted rock from 90,000 ft. of trench. Fleet ranges from ½-yd. Insley 25 (top, left) through ¾-yd. Byers 83 (top, right), and ¾-yd. Northwest (bottom, left), to 1½-yd. Marion (bottom, right)..

NINE MONTHS of preliminary work at Bull Shoals Dam results in completion of concrete cofferdam, diverson channel and closure, structure sluiceway (far left). Excavation for right half of dam within cofferdam is well along. Combined rail and highway across bridge is at extreme right. Gantry crane near bridge will assemble penstocks and gates before being transferred to concretng trestle. Concrete and aggregate plants will be on bluff at right where compressor plant has already been set up.

Construction Plans for Bull Shoals

BIG JOBS don't just happen. Their construction is carefully planned in advance. In fact, details of construction planning approach details of design in care, thoughtfulness and execution.

Typical of big-job advance construction planning is that for Bull Shoals Dam, being built on the White River in northern Arkansas for the Little Rock District, Corps of Engineers, by Ozark Dam Constructors, a combination of nine large contractors. Contract was awarded May 8, 1947, for $22,146,000, exclusive of cement, aggregates and certain installed equipment. Last November the same combination (under the name of Flippin Materials Co.) was awarded a $9,301,000 contract for aggregate production at the Flippin quarry site, 7 mi. from the dam. Thus, the group's total contracts amount to $31,447,000, a big job even in these days of stupendous projects.

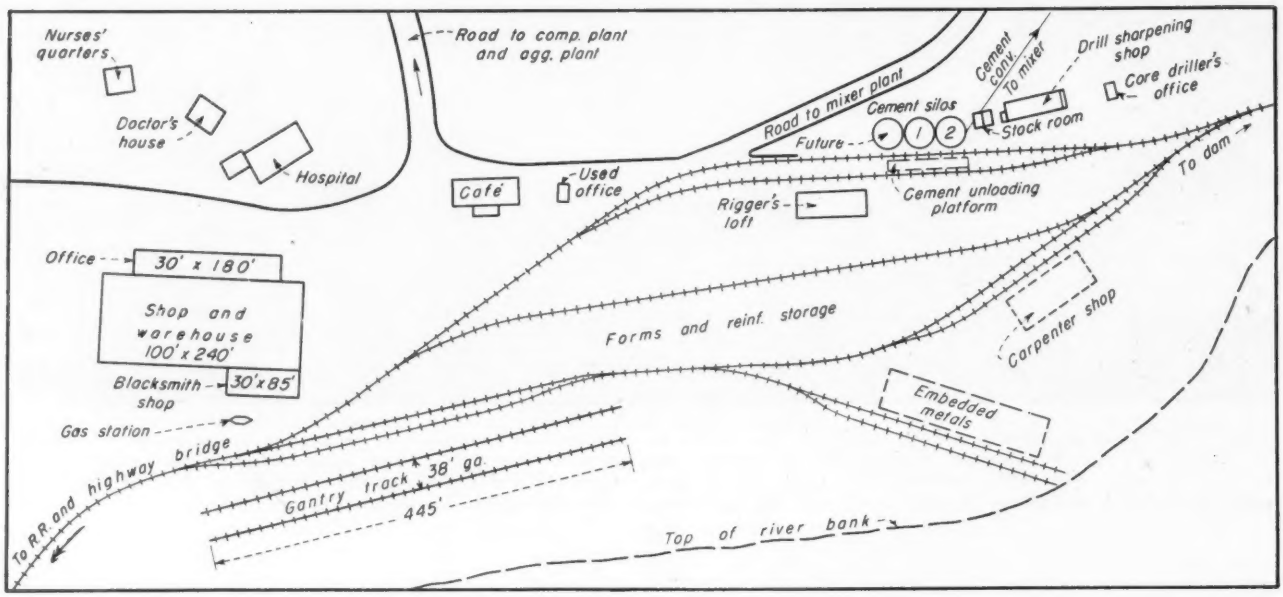
Bull Shoals Dam is a concrete gravity structure 2,256 ft. long and 283 ft. high, containing 2,100,000 cu. yd. of concrete. It includes a non-overflow section 508 ft. long at right abutment, a center overflow section 808 ft. long surmounted by 17 40 x 28-ft. tainter gates, and a 940-ft. left abutment non-overflow section containing eight 18-ft. penstocks for main units and two small penstocks for house units. A powerhouse with four 40,000-kw. units will be built under separate contract and four more similar units will be added in the future. Sixteen 4 x 9-ft. conduits in the spillway section will serve as second-stage river diversion and as permanent outlet works.

The government built, under separate contract, an access railroad 17 mi. long from Cotter, Ark., up the left bank of the river to the powerhouse area, and a 10-mi. bituminous road from Mountain Home, also terminating on the left bank. William A. Smith Construction Co., Houston, Tex., built the railroad. The highway was built by Ottinger Bros., Oklahoma City. Under the dam contract a 7-mi. road was built from Flippin to the right end of the dam.

To get the job under way, Ozark Dam Constructors built a temporary pile trestle highway bridge across the river, well upstream from the dam. This bridge has already been replaced by a substantial combination rail and highway bridge, built at low level downstream from the site, consisting of I-beam spans on ten concrete piers. This bridge was necessary to get rail traffic to the right bank, where the shops, storage yards, and aggregate and mixer plants are located.

First major construction operation was to start the first-stage cofferdam and river diversion. The contractors built a gravity section concrete wall, 45 ft. high, and 1,500 ft. long, as the upstream and river arms of the first stage cofferdam, with an earth embankment as the lower arm. This structure was

COMBINATION rail and highway bridge below dam connects busy government railroad and highway built up to powerhouse area on left bank. Bridge consists of I-beam spans on ten concrete piers.



WELL-PLANNED yard and work area will speed up construction operations. Railroad spurs and roads reach all parts of yard. Extensive shops will keep equipment rolling in isolated Ozark country where outside repair facilities are scarce. Gantry track mounts big crane that will assemble heavy metal parts. Crane will be moved later to concreting trestle.

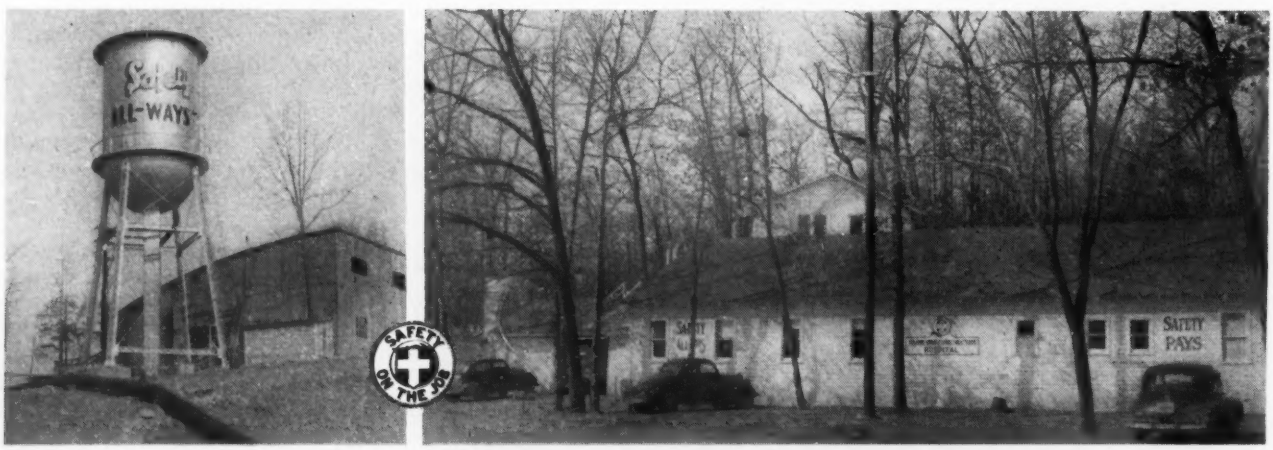
described in CONSTRUCTION METHODS' last issue (April, 1948, pp. 86-89). The river is now flowing through a diversion channel excavated in the left bank flood plain. A closure structure of 16 piers to receive concrete stoplogs has already been built across the upper end of the diversion channel.

Excavation of the right abutment started before the cofferdam was completed, and after the inclosure was pumped out, the digging crews moved into the old riverbed. Excavation, a large share of it rock, will run about 850,000 cu. yd., of which some 70 percent is in first-stage operations. In general, rock is loosened by wagon-drill blasting, loaded by Lima and Northwest shovels, and hauled by Euclid end-dump trucks. Plenty of planning went into excavation disposal, to build up working and shop areas and for job railroad and highway grades.

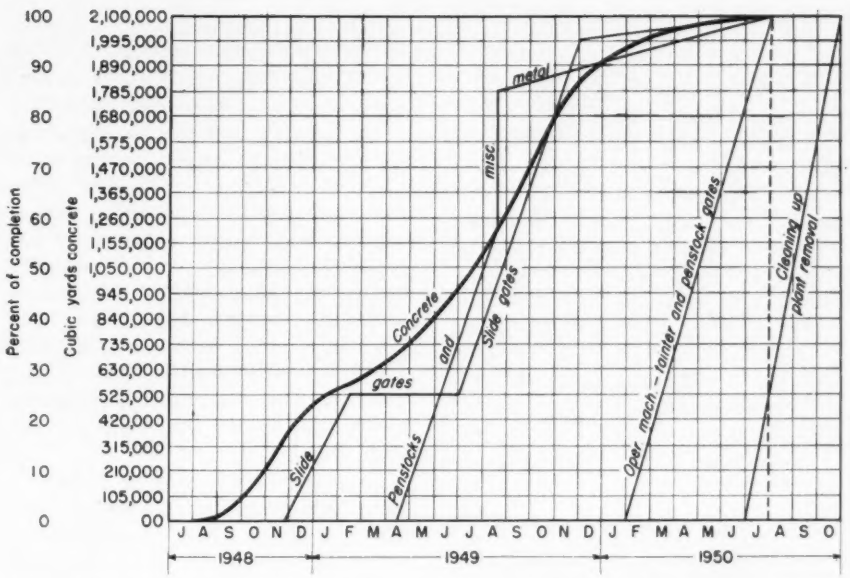
All spoil from early right-bank excavation went to level off and build up an extensive shop and working area between the bluffs and right side of the river, extending downstream from the dam to the new bridge. Plenty of advance thought went into this layout, both as to completeness and to accessibility. A map of the area is shown in an accompanying illustration.

Traversing this tract is a railroad track with several spurs and sidetracks. Alongside one spur is a 470-ft. length of 32-ft. gage track to accommodate one of the three revolving gantry cranes that will be used later for concrete placing. This crane in its temporary location will unload heavy materials and will also assist in fabrication of certain metal structures for the dam. All parts of the yard are also served by road.

At the lower end of the yard is about the most complete shop and warehouse ever seen on a construction job, for this project is far from sources of supplies, parts and repair facilities. Shop and warehouse are in one big building, 100x240 ft., flanked by a 30x180-ft. office lean-to and a 30x85-ft. blacksmith shop and acetylene generator station, where all gas for the job is made. The warehouse end of the big building is adequately stocked with



SAFETY is a major consideration by contractors and big warning signs appear everywhere. At left is 100,000-gal. water tank that will serve aggregate and mixing plants, alongside central compressor plant. Neat, well-equipped job hospital is at right.



CONCRETE SCHEDULE, basis of mixer plant and aggregate plant design and concrete placing layout, calls for peak placement of 200,000 cu. yd. per month during fall of 1949, and completion of 2,100,000-yd. structure by August, 1950.

parts and supplies stored in most orderly fashion, with their distribution under close control. The shop facilities include drop forges, lathes, milling machine, presses, boring mills, welding and automatic cutting equipment, grease, oil and wash racks.

Other buildings in the area include a hospital, nurses' quarters, doctor's residence, rigging loft, oil house, carpenter shop, cafe and drill sharpening shop. The last is most complete, equipped with Ingersoll-Rand furnaces, sharpeners and hot milling machines.

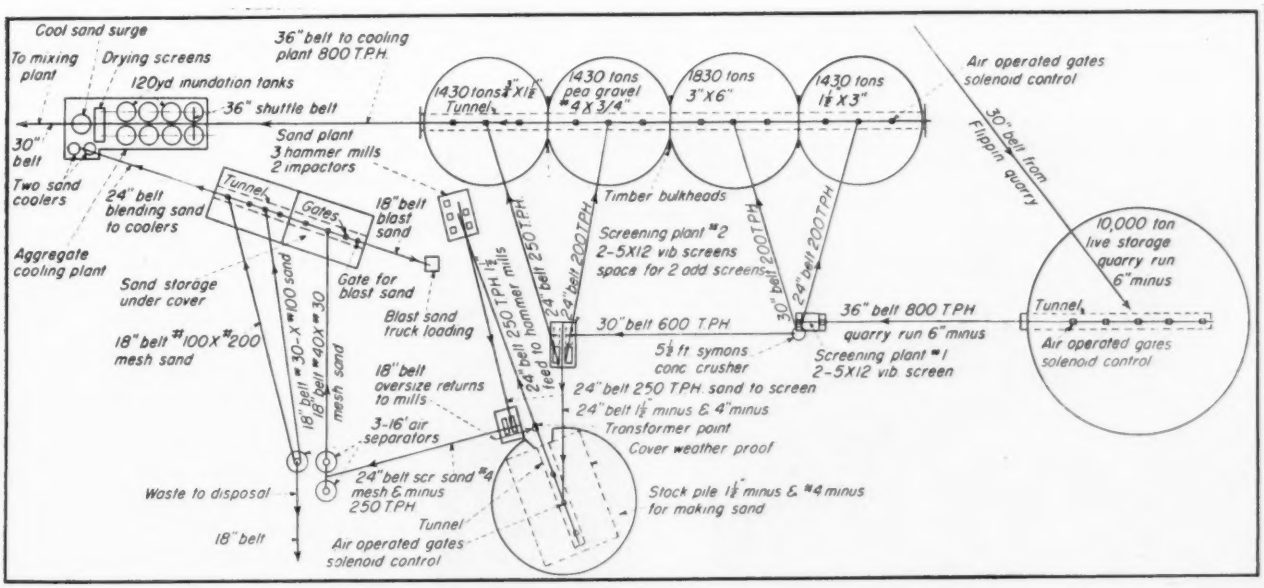
As all cement will come in by rail in bulk carload lots, there is a 10x90-ft. cement unloading dock between two railroad tracks. Two cement storage silos are also at low level in the yard, though the mixing plant will be high on the right abutment. Open storage facilities are available for lumber, reinforcing, steel forms and embedded metals.

Compressed air for all shop and drilling operations comes from a plant on top of the right bluff. Three Sullivan angle-compound, one Chicago-Pneumatic and one Ingersoll-Rand compressor, all electric driven, produce a total of 9,000 c.f.m. of air. The main supply line from the compressor plant is 22-in. pipe, branching off into 6-in. headers coupled with Gustin-Bacon and Victaulic flexible couplings. Jenkins valves control the air lines.

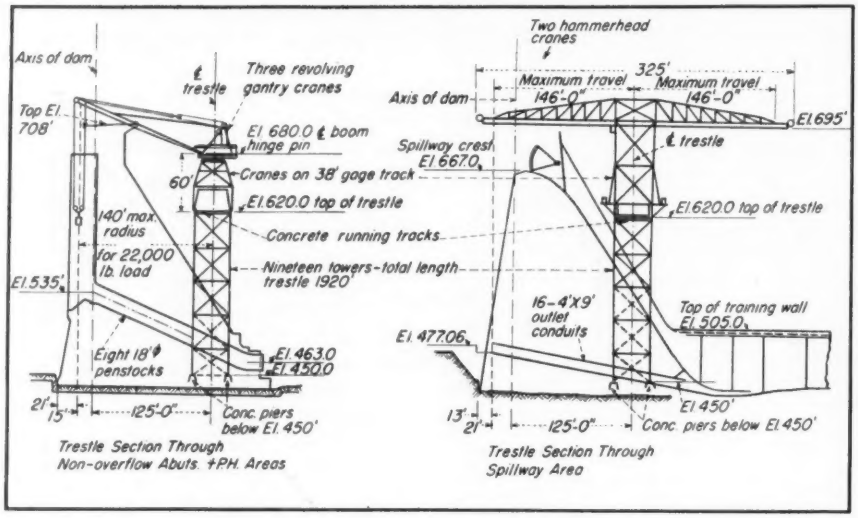
Water for limited domestic use, the aggregate plant, and concrete cooling and curing will be supplied by three barge-mounted pumps in the river, delivering 6,000 g.p.m. through a 16-in. line to a 100,000-gal. tank on top of the bluff. All water for the domestic system and cooling and dam operations will be chlorinated, and cooling water will have to be recirculated in low-flow hot weather periods.

Probably the most intensive advance planning went into aggregate production and concrete placing. At the time Ozark Dam Constructors were awarded the dam last May, it was not known who would produce the aggregates, as they were to be let by separate contract last November. However, the dam contractors were also low on aggregates, bidding under the name of Flippin Materials Co., so the entire concrete production and placing operations can now be carried out together.

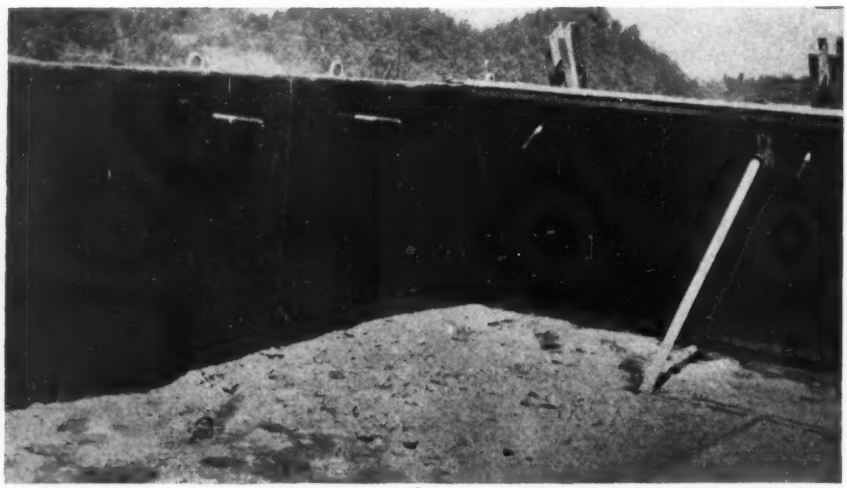
Concrete placing is scheduled to start sometime this summer. Stripping of the quarry site of Flippin, 7 mi. away, and grading of the aggregate plant and mixter site started only in February. In the five intervening months the preparation for


Cool sand surge
To mixing plant
Drying screens
120yd inundation tanks
36" belt to cooling plant 800 T.P.H.
36" shuttle belt
30" belt
Two sand coolers
24" belt blending sand to coolers
Tunnel
Gates
18" belt blast sand
Aggregate cooling plant
Sand storage under cover
Gate for blast sand
Blast sand truck loading
18" belt #100 X #200 mesh sand
18" belt = 30-X = 800 sand
18" belt = 40X = 30 mesh sand
18" belt oversize returns to mills
3-16' air separators
Waste to disposal
24" belt scr sand #4 mesh & minus 250 T.P.H.
Tunnel
18" belt
Air operated gates solenoid control
Sand plant 3 hammer mills 2 impactors
1430 tons 1" X 1½" Tunnel
1430 tons pea gravel #4 X 3/4"
1830 tons 3" X 6"
1430 tons 1½ X 3"
Timber bulkheads
Screening plant #2 2-5X12 vib screens space for 2 add screens
24" belt 250 T.P.H. 1½" hammer mills
24" belt 200 T.P.H.
24" belt feed to
30" belt 600 T.P.H.
5½ ft. symons conc. crusher
24" belt 250 T.P.H. sand to screen
24" belt ½" minus & 4" minus
Transformer point
Cover weather proof
Stock pile 1½" minus & #4 minus for making sand
Air operated gates solenoid control
Air operated gates solenoid control
30" belt from Flippin quarry
10,000 ton live storage quarry run 6" minus
36" belt 800 T.P.H. quarry run 6" minus
Screening plant #1 2-5X12 vib screen
Tunnel
Air operated gates solenoid control

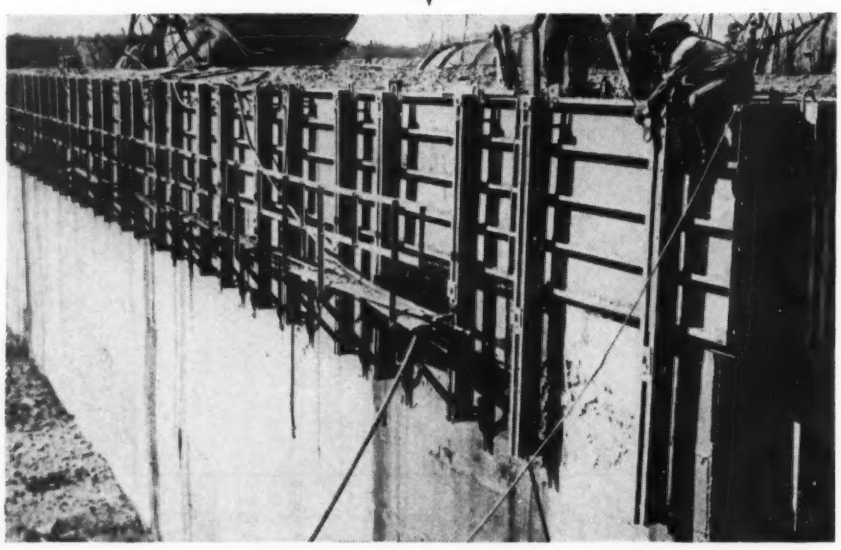
NEW IDEA in cooling concrete will be dunking coarse aggregates in circulating cold water and cooling manufactured sand in heat exchanger (left end of plant). Here is general layout of aggregate plant that will receive raw materials by 7-mi. belt from Flippin quarry.



CONCRETE will be placed by three revolving gantries and two hammerhead cranes from 1,920-ft. steel trestle built up from downstream toe. Delivery to cranes will be by 5-train cars hauling four 4-yd. buckets each. Nineteen steel towers supporting trestle are as high as 170 ft., founded on concrete piers.



CANTILEVER STEEL FORMS will cover more than 2,000,000 sq. ft. surface on dam. Two cantilever risers, bolted at bottom and braced at top will support each 10 ft. panel on 5-ft. lifts. Forms for sloping faces carry rollers to prevent panels from dragging over surface. Forms for exposed faces will carry absorptive lining. These Blaw-Knox views of similar forms were taken at Wolf Creek Dam.



concreting will represent one of the biggest and fastest construction operations seen in many a day. It will be an incredible performance.

All aggregates, including sand, will be crushed rock produced at Flippin quarry. Here 42- and 30-in. gyratory crushers and a set of screens will reduce the quarry run to maximum 6-in. size, scalping out everything below ¾ in. as waste if desired. One 30-in. and four 36-in. belt conveyors, totaling 1,175 ft., will handle stone at the quarry. The aggregate processing plant will be at the dam, on the right bluff.

A 30-in. belt conveyor 35,000 ft. long, broken up into 21 flights from 600 to 2,800 ft. long, each powered by a 100-hp. electric motor, will transport all stone to the dam. All flights will travel at 525 ft. per min. Maximum drop in any flight will be 174 ft., maximum rise will be 114 ft. The quarry floor is 300 ft. higher than the processing plant. Right-of-way for the long conveyor has been laid out 100 ft. wide, which will include, besides the conveyor, a telephone line, a power line and a 20-ft. patrol road.

Aggregate Production

New and unusual processes are planned for the aggregate plant to meet specifications calling for placement of concrete at a temperature range from 50 to 65 deg., which means 45 to 55 deg. out of the mixers. The cooling system was designed by the contractors, assisted by Royal S. McShea, Wichita, Kan., on refrigeration problems.

Four sizes of coarse aggregate—No. 4 to ¾ in.; ¾ to 1½ in., 1½ to 3 in., and 3 to 6 in., will be produced, along with three sizes of sand, which will be blended before proportioning at the mixer. The quarry supply belt ends in a 10,000-ton row aggregate storage pile over a reclaiming tunnel.

The coarse aggregate, from the tunnel, goes by belt to an unusual cooling plant consisting of eight (two for each size) vertical cylindrical tanks holding 120 cu. yd. each. Aggregates will be inundated in these tanks in 35-deg. circulating water. After a 30-min. retention period, the aggregates will pass through shaking screens to get rid of all water. Vacuum drying may also be necessary, but it is not contemplated at first. Charging, inundation and drying will be

on 2-hr. cycles. The cooling plant will be insulated, as will also the conveyor flight from line storage to the mixers and the mixing plant as well. Air inside the covered coolers, conveyor, proportioning and mixing plants will be kept at 35 deg.

Sand will be cooled by a dry process, starting with full weather protective covering at the raw sand storage pile. After passing through hammer mills, impactors, screens and air separators, all covered, along with connecting conveyors to keep the product dry, the sand will go to two 8-ft. dia. tanks 10 ft. high equipped with tubes surrounded by 35-deg. circulating water. Sand will be cooled by passing through the tubes, then will be stored in a large tank within the large aggregate cooling building.

The aggregate plant has been designed for a total capacity of 650 tons per hr. There will be a total of 41,240 ft. of belt conveyors, from 18 to 36 in. wide (mostly 30 in.) in the aggregate production, all belt being supplied by Goodyear. Conveyors will require 10,312 troughing idlers and 3,440 return idlers. Cooling will be supplied by three Vilter ammonia units totaling 1,690 tons capacity per day.

The concreting schedule calls for placement of 18,000 cu. yd. the first full month, this coming August, up to 200,000 cu. yd. per month during September and October of next year, with completion contemplated in July, 1950. Thus, the whole concrete production plans must be based on 200,000 cu. yd. per month output.

The mixing plant will be located 438 ft. from the aggregate cooling plant. It will contain Johnson batching equipment and four 4-yd. Koehring mixers, mostly salvaged from Friant, Dale Hollow and Conchas Dams.

Concrete will be placed from a steel trestle, carried on 19 steel towers, 170 ft. maximum height, centered 125 ft. downstream from the main axis in the toe of the dam. Tower legs will be carried on concrete piers. Top of trestle will be El. 620, while spillway crest is El. 667 and top of non-overflow sections is El. 708. The trestle will carry standard-gage tracks in the center and a heavy 38ft. gage track for the cranes. There will be three revolving gantry cranes, two Washington and one American, with 130-ft. booms, and two hammerhead cranes with 146-ft. maximum travel each way out from centerline of trestle.

Concrete will be delivered from mixer to cranes in 5-car trains, each train carrying four 4-yd. Blaw-Knox Air-operated straight side buckets with the spare car to receive the empty bucket left on the previous run.

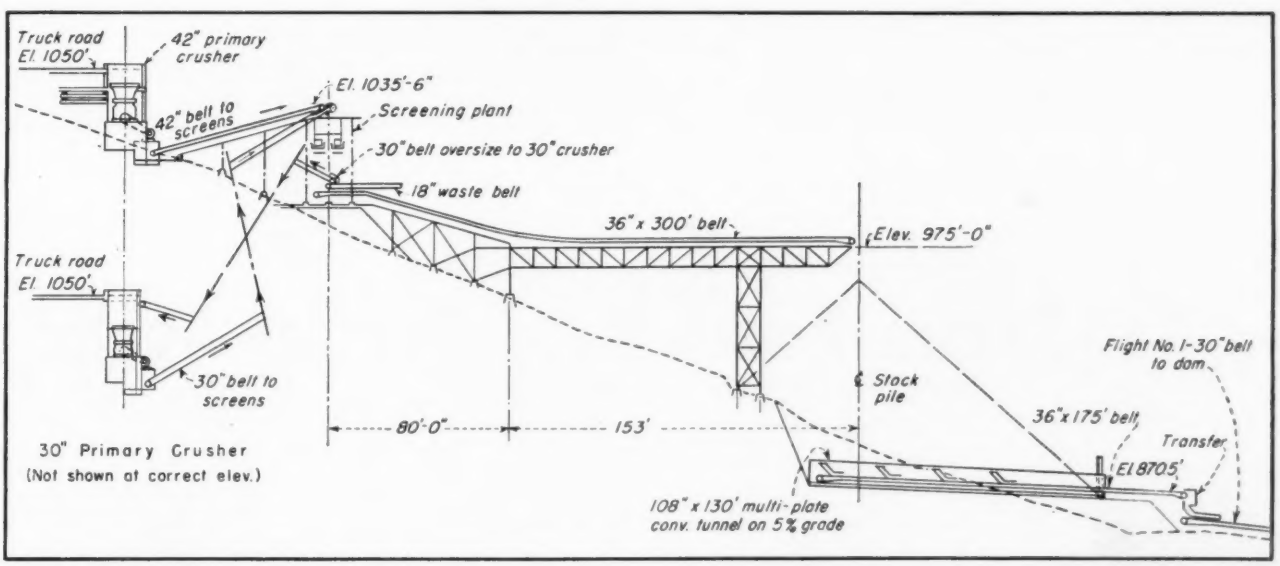
Blaw-Knox will supply cantilever steel forms for the entire job, similar to those now in use at Wolf Creek Dam. They are steel creations of the wooden cantilever design used at Friant Dam. Standard form panels are 10 ft. long, designed for 5-ft. lifts. Two cantilever uprights per panel are held by 1¼-in. Richmond screw anchors. Steel brackets and angle railings carry outside scaffolds and working platforms. Wheels on panels for the sloping downstream face will keep the forms from dragging against fresh concrete as they are being raised.

Nearly 2,000,000 sq. ft. of surface must be formed. All exposed faces will be covered with absorptive form liner, probably U. S. Rubber Co.'s Hydron. All concrete must be vibrated internally.

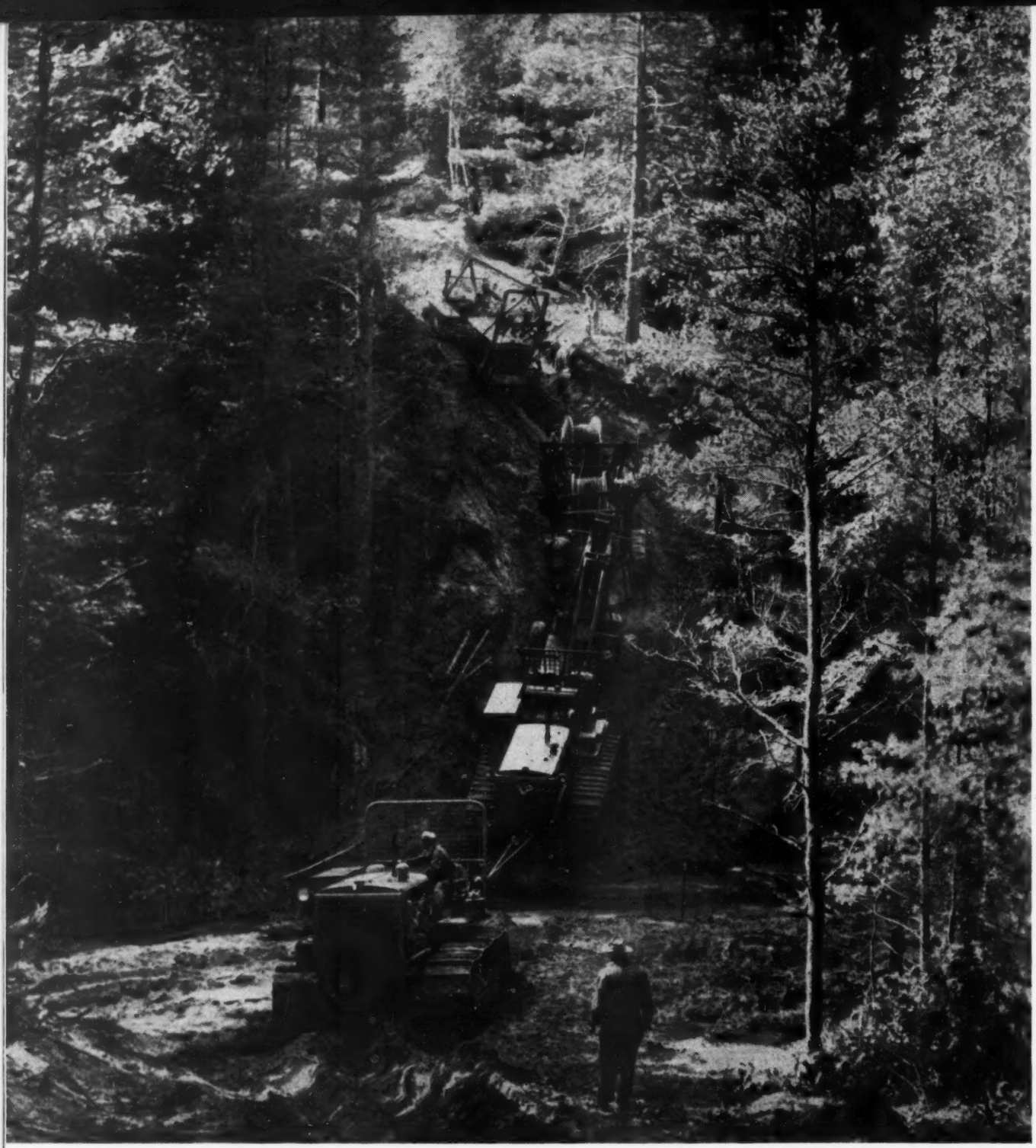
All this is advance planning for a big dam job. Some minor changes may be necessary, but on the whole work will proceed as outlined, thanks to intelligent advance preparation and ample provision for all operations. CONSTRUCTION METHODS will follow through on the actual construction operations.

Bull Shoals Dam is being built under the direction of Col. G. E. Galloway, U. S. District Engineer at Little Rock. Ralph Johnson is resident engineer for Corps of Engineers, assisted by L. A. Sherman.

Ozark Dam Constructors is made up of Brown & Root, Inc., Houston (sponsors); Morrison-Knudsen Co., Inc., Boise, Idaho; Wunderlich Contracting Co., Jefferson City, Mo.; Peter Kiewit Sons Co., Omaha; J. C. Maguire & Co., Los Angeles; Winston Bros. Co., Minneapolis; David G. Gordon, Denver; Condon-Cunningham Co., Omaha; and Chas. H. Tompkins Co., Washington, D. C.



AGGREGATES will be given preliminary processing at Flippin Quarry by two gyratory crushers and set of double screens reducing all material to 6-in. maximum size. Minus ¾-in stone can be scalped out and wasted at quarry if desired. Big stock pile will keep main feed belt to dam in operation during quarry shutdowns. There is a net drop of 300 ft. between quarry and aggregate plant.



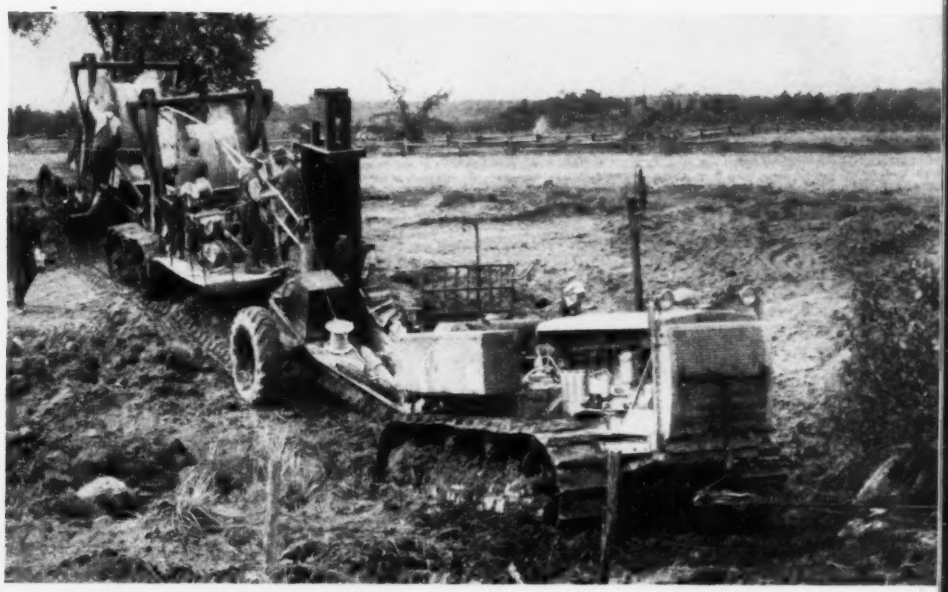
CABLE-LAYING train crosses ravine on Michigan Bell's line from Big Rapids to Petoskey. Two Caterpillar D8's follow previously-ripped line, pulling cable-burying plow followed by twin reel carriages. Third tractor snubs train down steep hill.

Cat-Drawn Plows Bury Coaxial Cable

NEW IDEAS call for new equipment and processes, so when the American Telephone & Telegraph Co. and its various Bell System subsidiaries developed the multiple-circuit coaxial telephone cable, new equipment was devised for putting it underground with utility construction crews. A train of cable-laying equipment, all Caterpillar tractor-powered, usually consists of a huge ripper to clear the underground right-of-way, a cable-laying plow that buries the line up to 6 ft. deep, and reel-carrying carriages that feed the cable to the plows. These pictures of widespread projects give an idea of the operations. All photos are from Caterpillar Tractor Co. except otherwise noted.

PRELIMINARY TO CABLE LAYING, tough ground is ripped to plow depth by special rig such as this one designed by Arthur Rehberger & Sons, Inc., in use on Chesapeake & Potomac's Baltimore-Washington link. Ripper, pulled by two tractors, is hydraulically operated from trailing power unit for raising and lowering ripper tooth and for lifting out boulders.

HYDRAULIC - OPERATED ripper tooth, mounted on Goodyear tires, will cut slot up to 6 ft. deep to make way for cable plow. Ripper depth can be controlled, and tooth may be raised for clearing or to throw out boulders. Goodyear News Photo

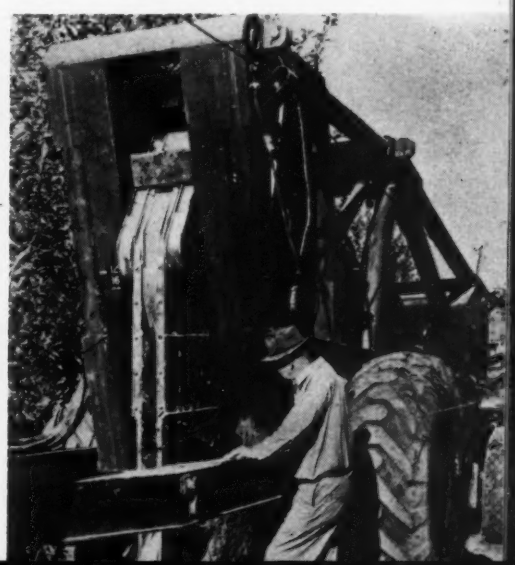


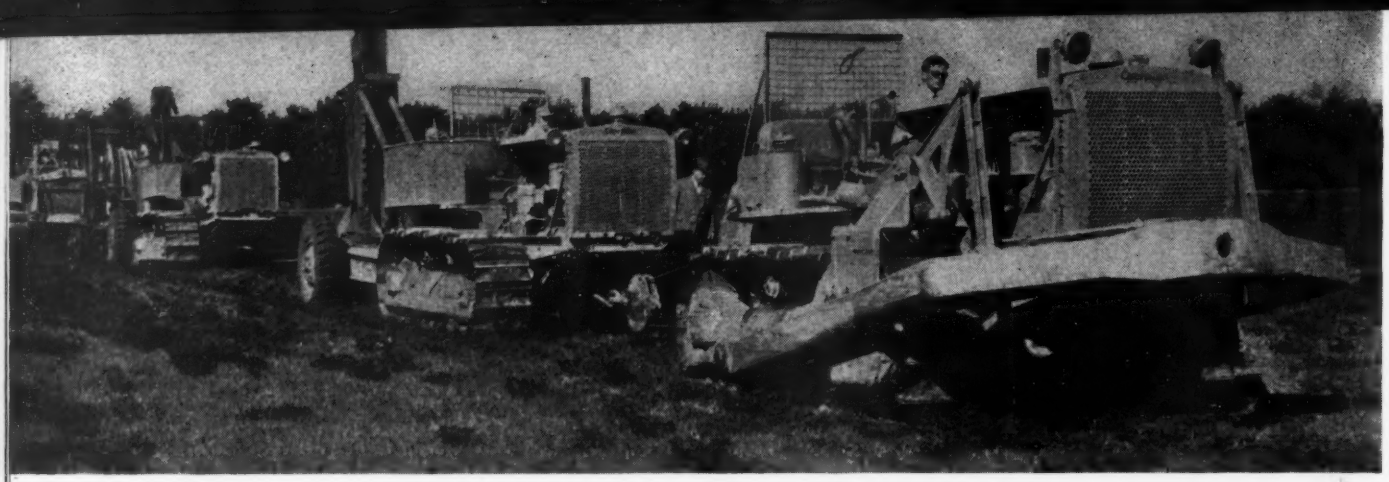
TWO COAXIAL CABLES are laid together on Bell Telephone Co. of Canada job between Montreal and Quebec. Snatch tractor is out of view at right. This type of plow is cable controlled for depth from power-control unit on tractor.

(Continued on next page)

CABLE-CONTROLLED PLOW (below), mounted on large tires and heavy frame lays two coaxial lines simultaneously in sandy ground on Michigan Bell project. This view shows rigging details for PCU control.

HYDRAULIC - OPERATED PLOW (below) on six Goodyear tires and heavy frame lays cable on A. T. & T. line between New York City and Albany. This giant rig will bury cable 5 ft. deep. It takes at least two Cat D8's on pulling end.

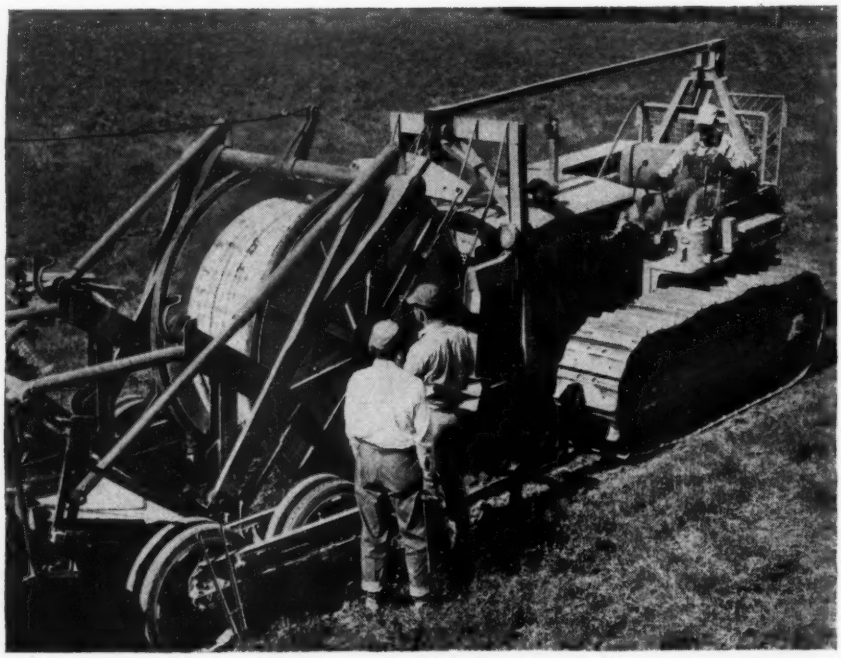




COMBINATION RIPPER and plow train, pulled by three tractors, slits ground, plows cable under and backfills all in one operation on Illinois Bell line between Chicago and St. Louis. These are cable-controlled rigs, working from 2 to 6 mi. per day, according to terrain. Fourth tractor at rear is for loading reels on to carriage.

Cable Laying

(Continued)



FOUR-TON REEL of coaxial cable is tossed on to wheel-mounted carriage by special front-fork attachment on Caterpillar tractor.
Acme Photo

CABLE TRAINS (below), take rivers in stride. Here is partly-submerged outfit on Michigan Bell line. Snatch tractor is off to right on dry ground.

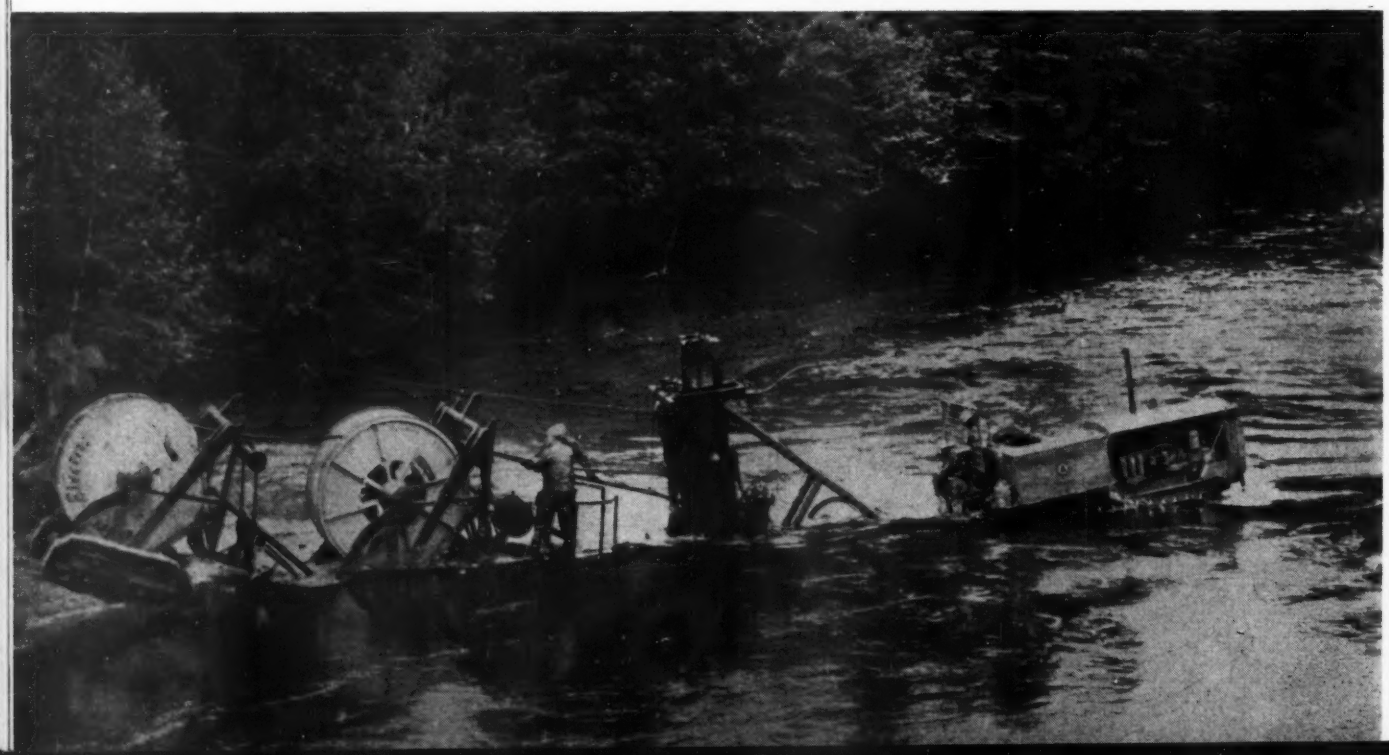


Photo U. S. Signal Corps

Lieut. Gen. Raymond A. Wheeler

CONTRACTORS deeply respect Lieutenant General Raymond A. Wheeler, Chief of Engineers, Department of the Army, not only as their biggest boss, but also because of the man he is. As a contracting engineer with about a billion dollars' worth of construction under contract or early contemplated, he is a most important factor in construction circles. As chief of the country's leading military engineer organization he is the contractors' partner in national defense. As a top military authority, wearing three stars, he is energetic and most capable, yet he is fair and reasonable in all things, and beneath those well-earned service ribbons beats an understanding heart. The General wields his authority firmly but gently.

Gen. Wheeler, affectionately known as Spec by his friends and admirers, was born in Peoria, Ill., July 31, 1885. He was appointed to West Point from his native state, and was commissioned in the Corps of Engineers upon graduating in 1911. As subsequent graduate of the Engineer School, the Command and General Staff School, and the Army War College, he has had all the higher education offered by the Army.

Spec's peacetime assignments are too numerous to mention in detail. He has served on the Panama Canal three times, including the position of Engineer of Maintenance. He has been District Engineer at Newport, R. I., Wilmington, N. C., and Rock Island, Ill. He also saw duty in Mexico and Hawaii.

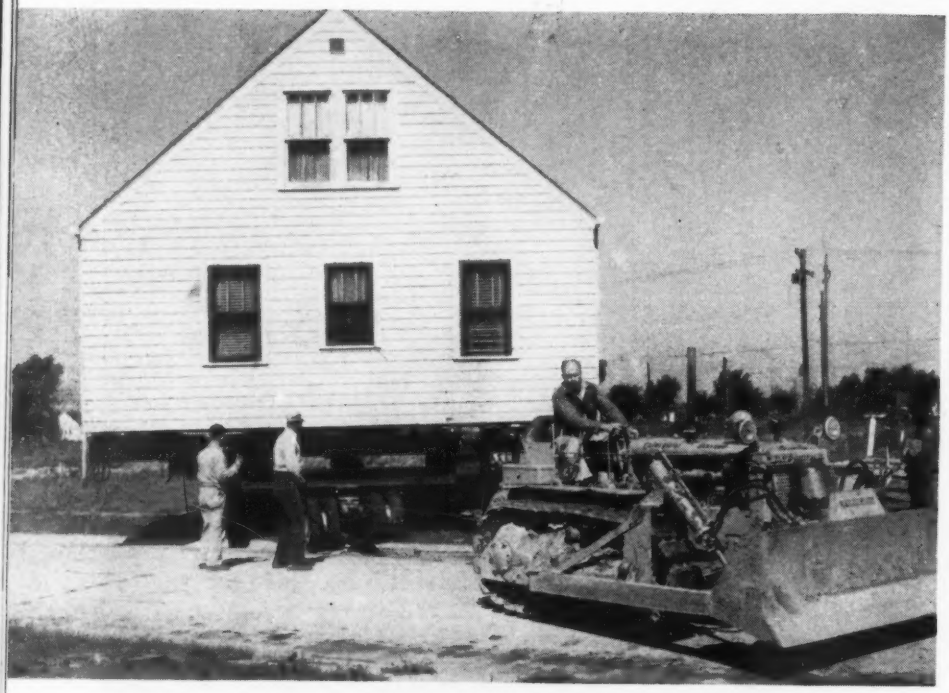
The General is a veteran of two wars. In 1918 he went to France with the 4th Engineers, and participated in the Aisne-Marne, St. Mihiel and Meuse-Argonne offensives and marched into Germany as Regimental Commander and Division Engineer. A Distinguished Service Medal and the Silver Star were his reward.

Pearl Harbor Day found Spec in Baghdad en route to Iraq on a military mission as a Brigadier General. As a Lieutenant General, 46 months later, he represented the United States at the formal Japanese surrender ceremonies at Singapore. In the meantime he had served on the Persian Gulf Command in charge of building the Lend-Lease supply route to Russia, had activated a Service of Supply for the China-Burma-India Theatre, had served as Deputy Supreme Allied Commander, South East Asia Command, and ended up as Commanding General, U. S. Forces in India-Burma. Two Oak Leaf Clusters were added to his Distinguished Service Medal for these achievements. A fitting climax to his illustrious career was his appointment as Chief of Engineers Sept. 30, 1945.

As Chief his responsibilities include the Corps' engineering and construction activities in river and harbor work, flood control, military establishments, and hospitals for the Veterans Administration. His duties are legion, but Spec takes them in calm stride, never losing his quiet dignity and forcefulness and never becoming excited.

The esteem in which he is held by civilians was shown by his being named recipient of The Moles non-member award for 1948 for "outstanding construction service." But honors and decorations rest lightly on General Wheeler's big frame. Soldier, engineer and constructor—leader in all of these—he is beloved, revered and respected by all who know him.

Occupants Taken for Ride on



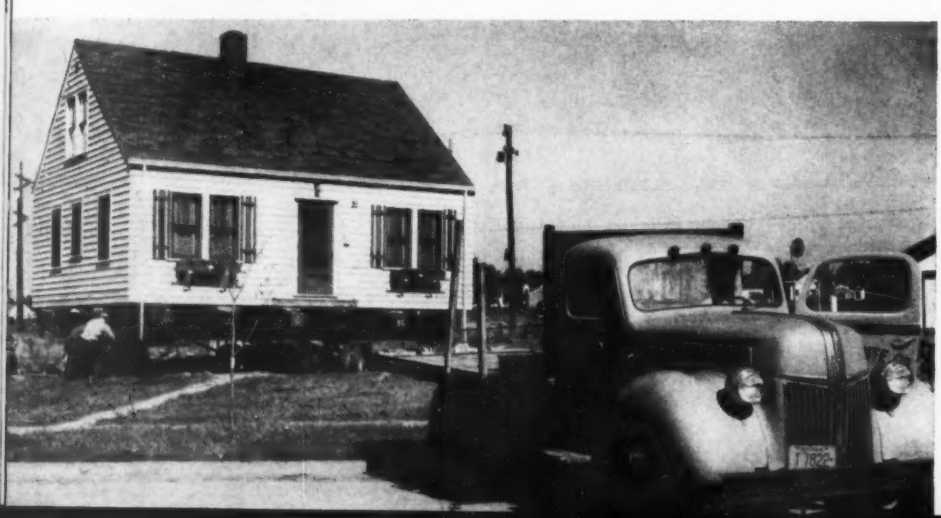
OCCUPANTS live normal life—well, almost normal—while rubber-track Caterpillar D4 tractor rolls house to new location to make way for Hammond, Ind., highway improvement. Contractor averaged house-a-day on 86-unit moving job.

WHEN E. W. LAPLANTE CO., veteran moving contractor of Indianapolis, Ind., recently took on the task of removing 86 houses and one church from right-of-way for the proposed Tri-State Highway in Hammond, Ind., without disturbing the occupants, Ken Adair, general manager, organized sufficient crews and special equipment to average one house moved per day, complete with new foundation, services reconnected, and all backfilling bulldozed into place ready for landscaping.

To do this, he organized four house-moving crews and hired enough masons, plumbers, electricians and concrete finishers to keep up their end of the job. Other LaPlante top management included Bradley Komers and Leon Pool, superintendents, George Hipp, field-office engineer, and Walter Elery, general foreman.

Each crew had virtually the same equipment — three special rubber-tired dollies, a truck-mounted power winch and a rubber-tread crawler tractor with bulldozer blade and rear-mounted power winch. New foundations, inclosing full basements for the 1- and 1½-story houses, are concrete block walls plastered both sides and waterproofed outside with two coats of asphalt emulsion. Basement floors are concrete, 4-in. thick.

SOME HOUSES must be turned 90 deg. before starting move. Ford 1½-ton truck (below) equipped with a Gar Wood power winch pulls them around to position so tractor can hook on for hauling to new site.



Coordinated Operations

Teamwork and well-integrated operations, rather than speed of any individual crew, keynoted the entire program. Prolonged rainy weather slowed up progress at first. But when the job got to running smoothly, it took less than one day to block up a house and install dollies ready for moving. On the second day it took about 2 hr. to move the house to its new location and 4 hr. to install temporary cribbing in previously excavated basements, and remove dollies. The third day, concrete block walls were laid up, plastered and waterproofed. During the fourth day, cribbing was removed and all water, sewer, gas and electrical connections made. On the fifth day, the concrete floor was poured in the basement and surrounding lot bulldozed ready for landscaping.

Occupants of the houses suffered little inconvenience during moving. So smooth were the operations that chinaware was left undisturbed in cabinets and pictures left hanging on the walls. On an average the occupants were without water and sewer connections not longer than 4 hr., and electricity 24 hr. They were without gas for 4 or 5 days, however, due to the utility company's refusal to make temporary connections.

First operation in moving, was to knock holes in the end walls of each basement and insert two 12x12-in. by 40-ft. timbers. Six 12x12's then were slid transversely

One-a-Day House Moving Job

JACKED-UP HOUSES are lowered on to three special pneumatic-tired dollies supported by planked cribbing built up from basement floor after foundation walls are knocked out to permit 90-deg. turn. Two dollies (left) at rear bear against longitudinal stringers, while single front dolly (right) mounts 10-in. H-beam bolster engaging forward ends of both stringers.

on top of the longitudinal stringers, through holes knocked in the foundation. Timber shims were driven between cross-stringers and exterior and center walls to carry the full weight of the house.

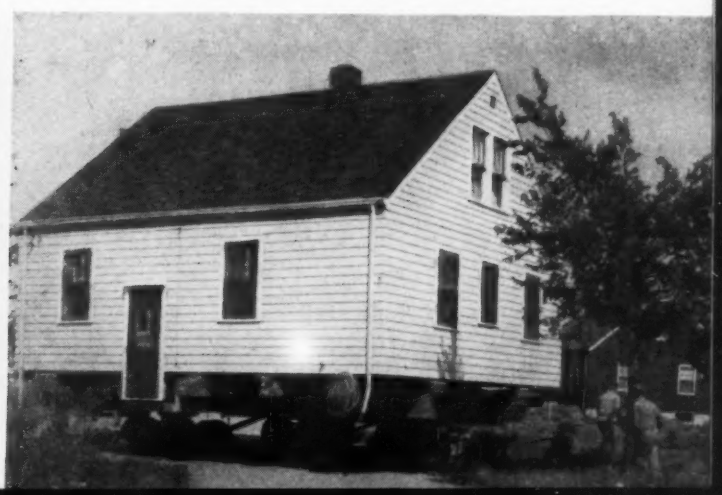
Three cribs of 6x6-in. by 3-ft. timbers, built up from basement floor to ground level, under each longitudinal stringer, and planked with 3x12's formed runways for the dollies in moving the house off its foundation. Six hand-jacks between cribs and stringers raised the house, the three dollies were wheeled into position and the house lowered on to them.

Both rear dollies were placed directly under the longitudinal stringers, while the front one was spotted midway between them. A 10-in. H-beam, coped 6-in. deep at each end, transferred load to the front dolly.

The two longitudinal stringers, carrying the reactions from the cross-stringers to the dollies, were not placed parallel to the sides of the house. At the rear they were spotted under the one-quarter

THREE OF THESE eight-wheel dollies (below) with swivel bolsters transport each house. Housemoving has improved a lot since old roller-and-skid days when motive power was mule-operated capstan winch.

THREE-POINT MOUNTING of carriages (below) permits tractor to wheel house off street right on to lot upon reaching new location.



ON NEW LOT houses are transferred from dollies to cribbing while new foundations are built. Temporary utility connections allow occupants to live in comfort during all operations. Only expense to owners is landscaping of new grounds.

WELL PLEASED with their work are LaPlante house-movers KEN ADAIR (left) general manager; BRADLEY KOMERS, superintendent; and GEORGE HIPP, field-office engineer.

points, but at the front they were pulled in to about the one-third points to engage the coped H-beam.

Dollies used on this job were the LaPlante Company's own all-welded 8-wheel, 2-axle design, mounting 7:50x15 heavy-duty tires. At the top is a heavy channel in direct bearing against bottom of timber stringers, and welded to a female casting. This casting bears on a ball-and-socket casting forming part of the dolly carriage. A 4-in. solid steel shaft, reinforced with welded gussets, transfers load from ball-and-socket to the two axles of the carriage. Each end of this shaft terminates in a sleeve in bearing on a fifth-wheel framed above the axles, to permit individual oscillation of each axle.

Most of the houses measured 32x24 ft., overall, with the longer dimension paralleling the street. This necessitated first rotating them 90 deg. by a truck-mounted winch, blocked against the street curb, with the load lines snubbed around the front end of the longitudinal stringers.

After rotation, the bulldozer backed up on the lawn, hooked to a cable which was clamped around the front ends of the two longitudinal stringers atop the dollies, and maneuvered the house out into the street.

Once in the street, the tongue of the front dolly was chained between the pulling cables, while tongues of the rear dollies were tied to a 2x6-in. timber reach to make them track parallel. Hand-ratchets tied between the ends of a cross-stringer and the timber reach, controlled movement of the rear dollies when making a turn. Each dolly has a hand brake, and three men walked along under the house to apply the brakes as necessary.

Upon arrival at its new location, the house was positioned over the previously excavated basement, and timber cribs built for temporary supports until walls were built ready to receive the house.

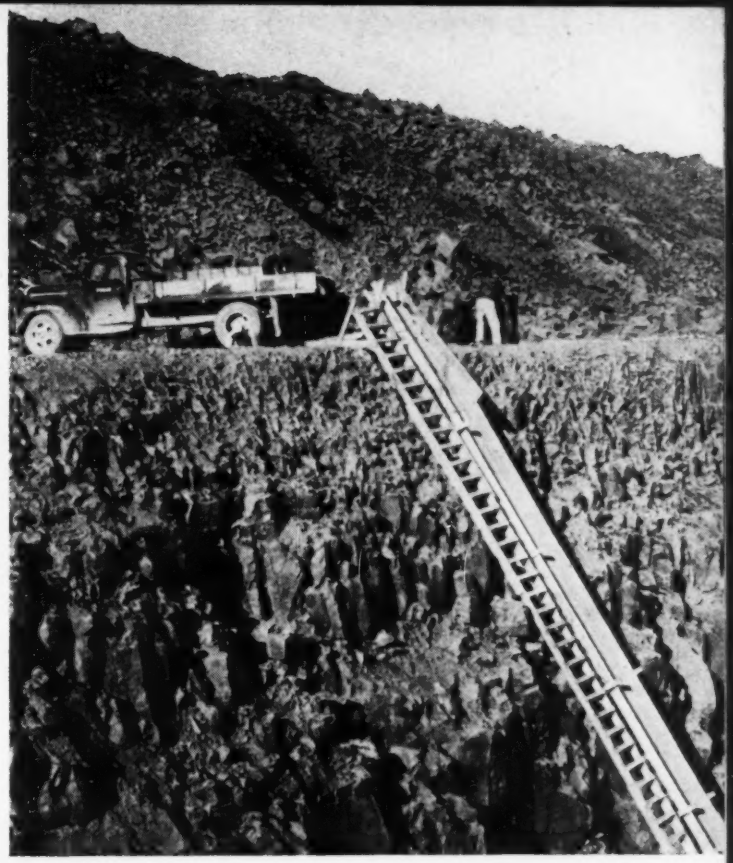
LaPlante Company held individual lump-sum contracts, ranging from $3,500 to $8,000, with the owners for moving the houses, complete except for landscaping. The owners, in turn, were reimbursed for all costs of moving, plus a small inconvenience fee, by the Indiana State Highway Department, which was represented on the job by Walter Bruner and Nile Teverbaugh, supervisors of right-of-way. The entire project was completed 3 weeks after the last house had been moved. Lots were graded ready for landscaping.

Fall River Dam Wins Safety Flag

PROUDLY N. M. BEDERMAN (left), president of Arcole Midwest Corp., Chicago, contractor on Fall River Dam in Kansas, stands in front of the job safety bulletin announcing completion of 134 days without an accident, an achievement that won the Tulsa Engineer District safety flag for the year, presented by COL. C. H. CHORPENING (right), District Engineer, at special job ceremonies April 12. Bederman and resident engineer John R. Soderberg raised Fall River from worst last year to best in the district this year.

Surplus Explosives Blast Canal Plug

WAR-SURPLUS demolition explosives, sweetened with DuPont Special Gelatin, were used to good advantage by J. A. Terteling & Sons, Boise, Idaho, to blast out a 35,000-yd. solid rock plug left in the main Columbia Basin canal as a roadway. Some 17,000 lb. of explosives were fired in a coyote hole to loosen the plug. Eugene Williams, superintendent for Terteling, was in charge of the job.

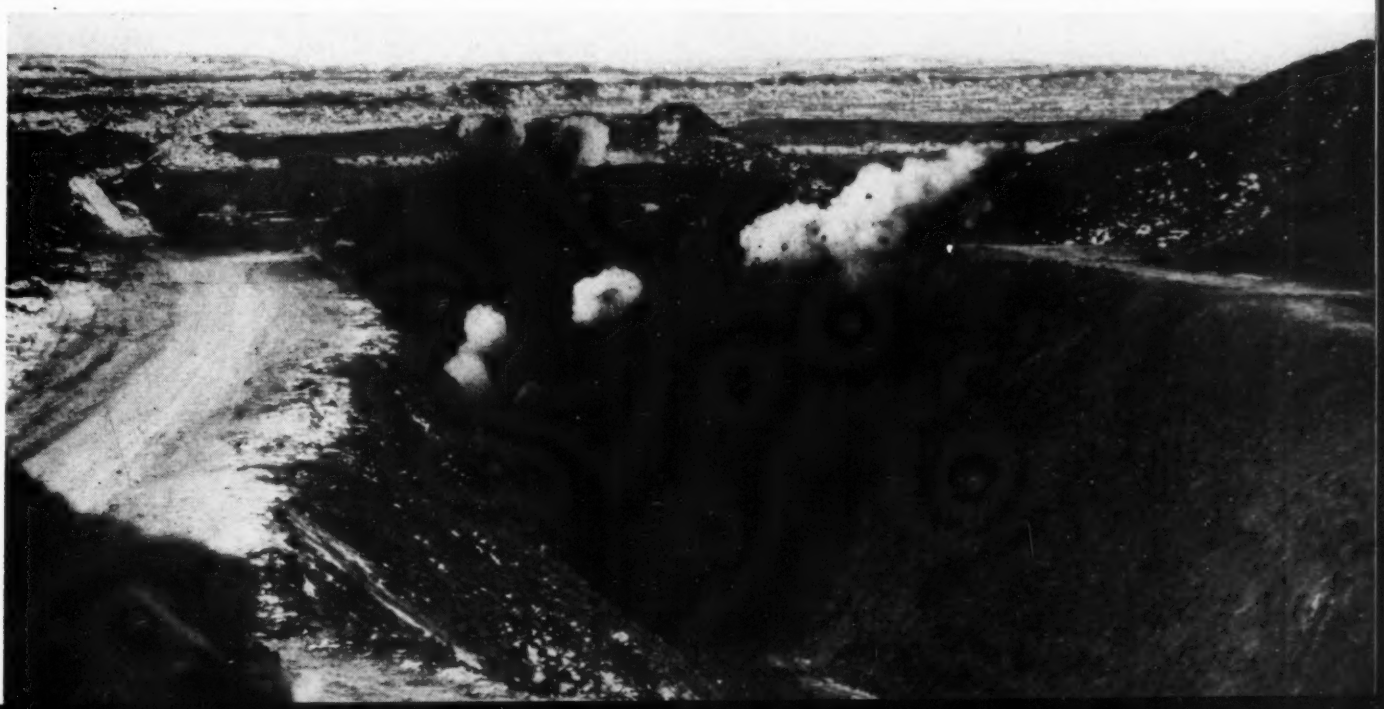


SOME 8½ TONS of explosives, mostly war surplus, were lowered 90 ft. down this timber chute to bottom of Columbia Basin main canal for loading into coyote hole to remove solid rock plug.

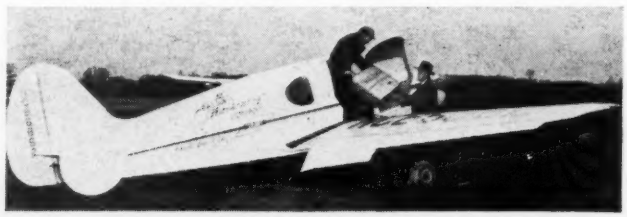
U. S. Bur. Reclamation Photos

← POWDER was wheeled into coyote hole to build up 17,000-lb. charge for loosening 35,000 cu. yd. of solid rock. DuPont Special Gelatin was added to surplus demolition explosives.

FIRE IN THE HOLE (below), and 35,000 cu. yd. of solid rock is jarred loose by shots loaded at bottom of big ditch.



CZECHOSLOVAKS WORK "VICTORY SHIFTS" on Sundays to advance completion of this building in Prague. Human chain passes tiles for roofing structure. New Communist government said workers who normally rest on Sunday reported for work to celebrate "victory of progressive forces" in the country's recent political crisis. Press Assn. Photo

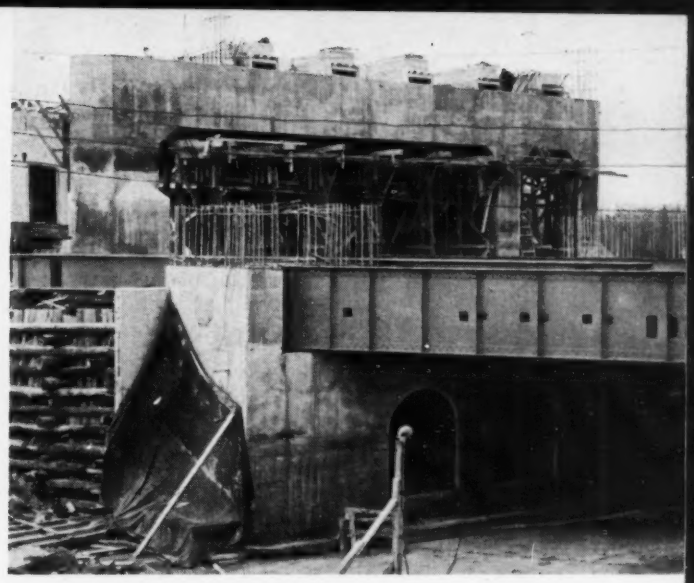


EQUIPMENT DISTRIBUTOR SPEEDS DELIVERY of spare parts for heavy-duty construction equipment of his customers. Baldwin Machinery Co. of Charleston, W. Va., inaugurates airplane service operating regularly between its headquarters and the plants of its suppliers. Spare parts' requirements reported in early morning are said to be generally delivered by Bellanca plane on job on same afternoon.

FOR 1,000-BED VETERANS' HOSPITAL at Newark, N. J., ground was broken recently by JOSEPH H. KRONENBERG, JR., World War II veteran. Sixteen-story structure is being built under direction of COL. C. F. WILLIAMS (second from left in front row), New York District Engineer, Corps of Engineers, Department of the Army. Main hospital building is H-shape with overall width of 370 ft. and depth of 370 ft. Hospital will accommodate 3,000 persons including patients, staff and visitors. Hospital is located on former 35-acre Bamberger estate. Low bid of $13,977,000 for constructing main hospital building was submitted April 2 by H. R. H. Construction Corp., of New York.

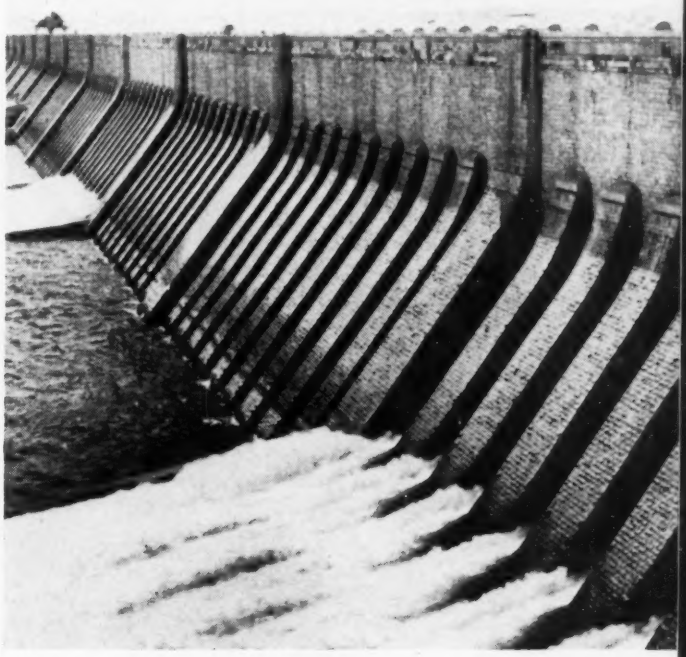
TO MEASURE HORSEPOWER REQUIREMENTS for heavy-duty earthmoving and construction vehicles, this dynamometer (below), with draw-bar pull measurement capacity of 100,000 lb. has been developed by the Firestone Tire & Rubber Co., of Akron, Ohio. To eliminate inaccurate job rating of equipment machine accurately charts and permanently records draw-bar pull and draw-bar horsepower under all conditions. As an aid in solving traction problems dynamometer also tests tractive ability of heavy-duty tires. Test unit is constructed on 4x2 truck-tractor chassis, and component parts include water tank to allow variable weights and diaphragm type draw-bar pull measurement devices at front and rear. Here rig clocks tug-of-war; three C Tournadozers vs. one Model A.

TOWNSITE AT DAMSITE takes form as Caterpillar diesel motor grader prepares road leading to group of newly completed buildings at Hungry Horse Dam near Coram, Mont. Grader is operated by S. Birch & Sons Construction Co. of Great Falls, Mont., which has contract for clearing townsite and building and paving several miles of roads and streets.



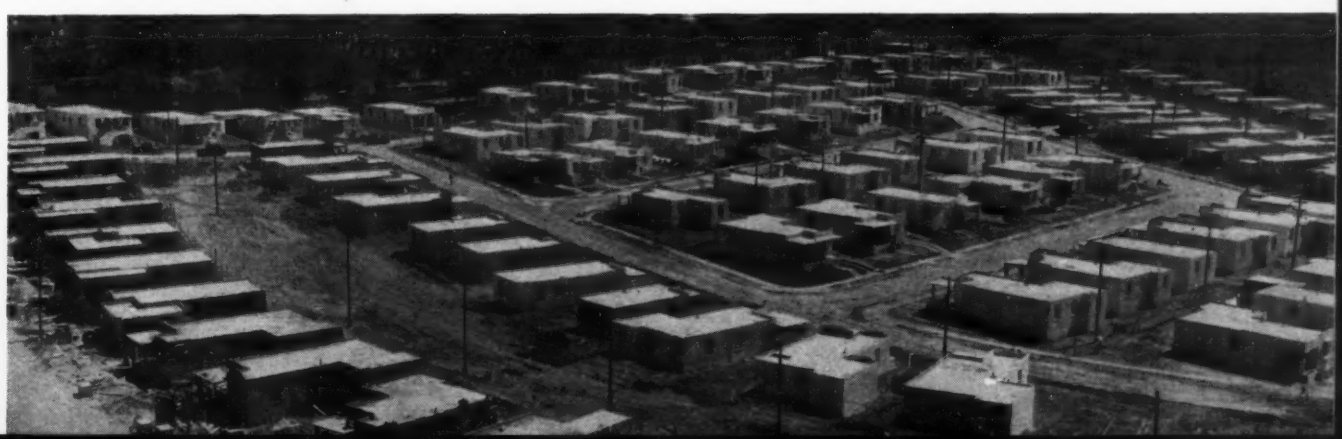
TRIPLE DECKER—Massive million-dollar, three-level underpass-overpass is being constructed by Virginia Department of Highways near Norfolk. U. S. Route 13 will cross at top level with two other routes on lower level. Steel girders at center will carry double-track main line of Norfolk & Western Railway and a connecting highway. Structure measures 50 ft. in height.

CONSTRUCTION PROCEEDS on $6,000,000 Harvey S. Firestone Memorial Library at Princeton University being built by Turner Construction Co. of New York to store 1,800,000 volumes in space of 3,870,000 cu.ft. Designed by architectural firm of Robert B. O'Connor and Walter H. Kilham, Jr., structure is described as an "open stack" library eliminating all barriers between books and their users. Building is scheduled for completion this summer.



FAMOUS ASWAN DAM built years ago on River Nile in Egypt will soon be scene of operations required for installation of power plant authorized by Egyptian Public Works Ministry. Dam stores part of annual flood from October to January to irrigate crops from February through July when Nile normally runs low. Wide World Photo

PUERTO RICO'S HOUSING SHORTAGE in San Juan area will be eased considerably upon completion of $50,000,000 building program which calls for construction of 11,000 homes. Two small projects—one for 250 homes, another for 550 homes—have already been completed. Work is now under way on a 5,000-home project in which houses will be finished at rate of 100 a day. Similar project is in blueprint stage. Below is a view of construction of homes in Caparra Heights section of San Juan. They will sell for an average price of $8,500 each. Wide World Photo

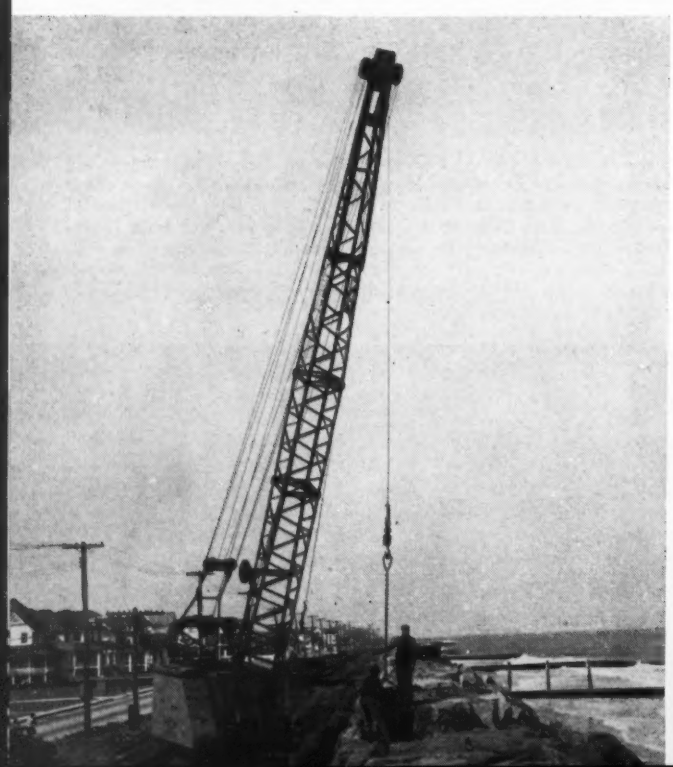


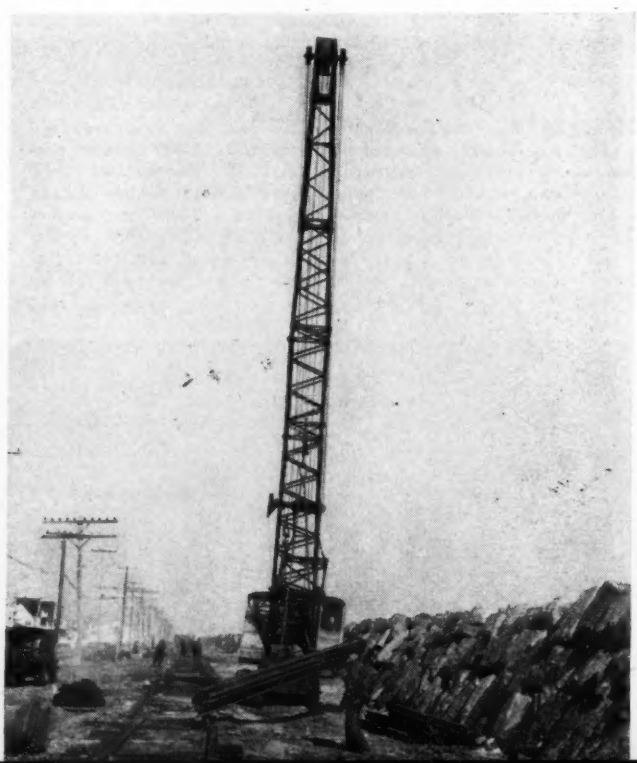
THREE CRANES belonging to Jesse A. Howland & Sons, Inc., place dimension stone in New Jersey seawall at Sea Bright. Trucks deliver stone for this section from cars at railhead. Small stone filler is dumped from skips.

Cranes Build Rubble Seawall

CRAWLER CRANES, unloading from both trucks and railroad cars, built up a 2-mi. rubble stone seawall along the storm-battered Atlantic Coast between Sea Bright and Highlands Beach, New Jersey. Thos. Proctor Co., Long Branch, N. J., installed a railroad on an abandoned roadbed alongside their contract for the north

NORTH HALF of job is served by railroad built by Thos. Proctor Co. for purpose. Link-Belt Speeder crane lifts big dimension stone (left, below) direct from cars to wall. At end of job same crane (right) rips up temporary track. These two views show excellent line, grade and even top and slopes of wall obtained by careful stone setting.





SHOVEL-TO-CRANE-TO-CAR is passing combination on stone-loading operations at Kingston, N. J., quarry, which, with similar quarry at Bound Brook, furnished all stone for job. Rock is blown from quarry face by coyote-hole blasting. Marion 4-yd. electric shovel sorts sizes and loads small stone into trucks. Northwest crane with grapple hook loads big pieces into rail cars.

half of the new wall for handling big stone direct from cars. On the south half of the job Jesse A. Howland & Sons, Inc., Sea Bright, N. J. hauled all stone from railhead to site in trucks. Large dimension stone made up the bulk of the wall, but small filler stone was placed in the interstices with dump skips.

The wall, costing $700,000, was built under the direction of the New Jersey State Department of Conservation with the financial cooperation of Monmouth County and the City of Sea Bright. It is roughly 19 ft. high on a 45-ft. wide base, with a ¾ to 1 land slope and a 1½ to 1 batter on the

AS A RAILROAD wasn't feasible for south half of job, Howland transfers big rock from car to flat-bed truck for haul to wall. Clamshell bucket serves as rock grapple for big stone.

All Photos by Sickles Photo-Reporting Service

BATTER BOARDS (below) define slopes and top surface to which wall is built.

NEW WALL completely encases sections of old pile and timber stone-filled bulkhead. Stone protection extends 4 to 5 ft. in front of old cribbing.

sea side. For part of the distance the new wall completely engulfs an old pile, timber and stone wall.

The job was completed the first of this year after six months' work. Frank A. Tracy, assistant director of the Department of Conservation, was in charge for the state. Otis R. Seaman, Monmouth County engineer, represented this county. John F. Kiely directed operations for Thomas Proctor Co., and Jesse E. Howland was in charge for his firm.

Accompanying pictures and captions tell the construction story.

← CREOSOTED TIMBER BULKHEADS replace the conventional stone wall where property lies seaward of new wall line. Access openings in timber bulkheads will be closed during storms to protect inland property. Note how small stone is worked into wall mass.

CONTRACTORS did good job in grade and alignment, as shown by shot (below), of a finished section. New wall along New Jersey's sandy coastline is already favorite spot for surf fishermen.

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB

By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Clerk's Fee

Tractor Conn had completed his work, found it necessary to file a lien on the building, and instructed his attorney to do so.

"Am inclosing herewith lien papers, which you will kindly file," the attorney wrote to the clerk of the proper court.

"Papers received today. My fee is 35c.," the clerk replied. The claim was not docketed until a week later, and then the time for filing the claim had expired.

"The clerk according to law had the right to demand his fee in advance, and the claim was not filed until the fee was actually paid," the owner contended.

"The clerk's letter contained no demand for payment, and the claim was legally filed when the clerk received it," Tractor Conn argued, and the Wisconsin Supreme Court ruled in his favor in Lang vs Menasha, 96 N. W. 393.

The Case of the Substitute Flooring

"The said building shall be constructed strictly according to the plans and specifications, and shall not vary therefrom in any manner without the written consent of the owner," Tractor Conn's contract stated, and the floors were being laid.

"The contract calls for ———," the foreman stated, naming a well-known material.

"Better use ———," Conn ordered, naming another equally well known material. The Foreman obeyed orders, and the owner claimed that there had been a breach of the contract.

"The material named in the contract was procurable, and there is no excuse for the deviation," the owner contended.

"The substituted material was substantially the same as that named in the contract, and really fitted into the plan better than the specified material," Tractor Conn pointed out.

"That is absolutely immaterial, and I'm entitled to have the contract performed as it is written," the owner maintained, and the Texas courts ruled that he was right in a case reported in 14 S. W. 701.

The Case of the Attached Agreement

"No extra charge shall be made unless a written agreement to that effect is signed and attached to this contract," a building contract provided. The owner asked that extra work be done and Tractor Conn refused.

"The contract plainly implies that extras may be demanded," the owner contended.

"No, the contract says that extras cannot be charged for unless a written agreement is attached to the contract. I will not sign any agreement, so I cannot demand pay for extras, and you cannot insist that extra work be done," Conn retorted.

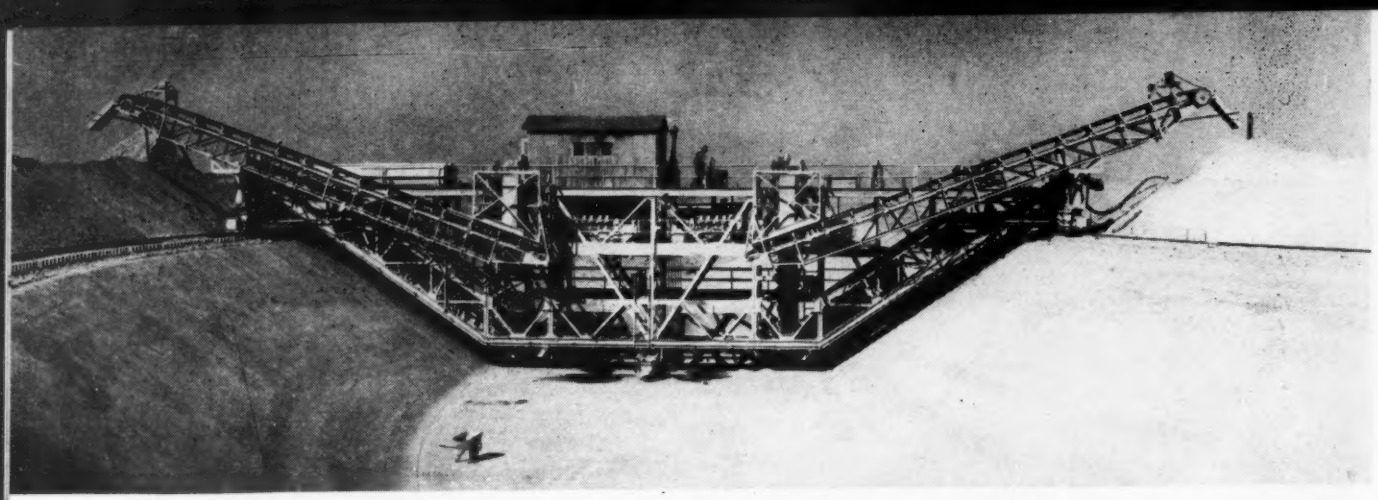
And Tractor Conn was right.

In a Maryland case, however, where the contract contained a similar clause, Tractor Conn went on and added extras, without any written agreement, and the owner refused to pay.

"It's true there was no written agreement, but the extras are on the building. You have the benefit of them, and you cannot evade payment," was Conn's argument.

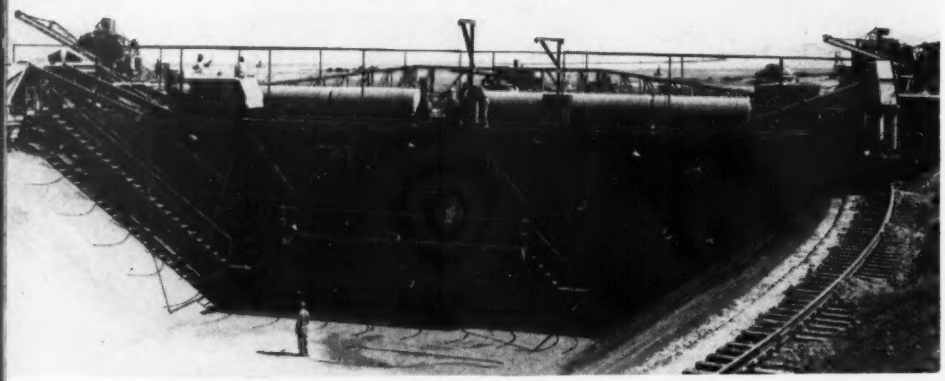
But the Maryland courts in the case of Abbot vs Gatch, 13 M. D. 314, ruled that Tractor Conn could not collect.

More Legal Adventures of Tractor Conn Next Month



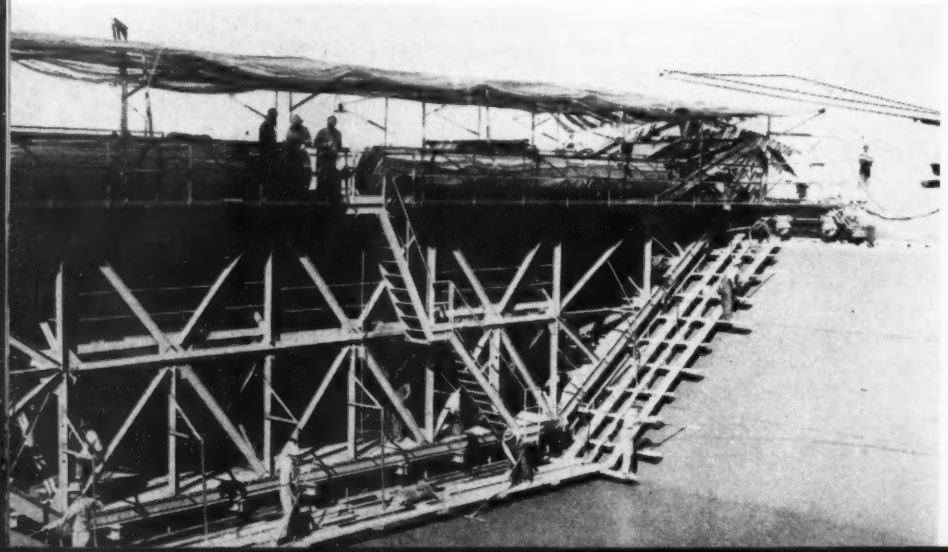
1 LEADING the battery of big canal-building machines on Delta-Mendota project is trimmer. Knives cut slopes and bottom to grade, scrapers pile spoil to within reach of bucket elevators which waste dirt to each side.

Jumbo Rigs Trim and Line Big Canal



2 CONCRETE LINING, 4 in. thick, is placed, spread and screeded by this machine. Pavers on each bank discharge mixed concrete into dump cars on rig, which are wheeled out over point of placement. Forward movement of self-propelled rig spreads and screeds the lining.

3 HAND FINISHING is done from scaffold on rear of concrete placer by workmen wielding long-handled floats.



THAT OLD MASTER BUILDER, Paul Bunyan, who adored gigantic equipment almost as much as he did his big blue ox, Babe, would have been mighty proud of the four self-propelled jumbo rigs H. H. Everist, Sr., Westley, Calif., contractor, built for trimming and lining his section of Delta-Mendota Canal on the Central Valley project in California. The battery of big rigs each spanning 112 ft. between rails at top of banks, is used for trimming slopes and bottom, placing, spreading and finishing concrete lining, setting contraction joints and applying curing compound.

Improved Models

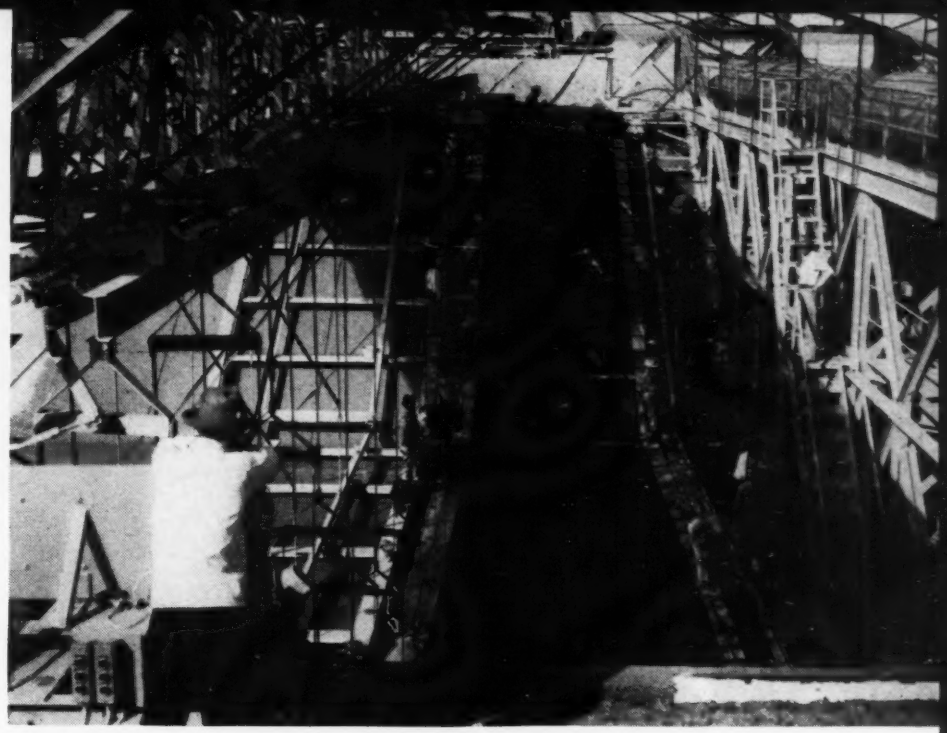
These are the largest machines of their type ever built, and all include improvements over similar smaller machines. The trimmer is quite different. Instead of the usual endless chain of buckets, the rig is equipped with knives that cut side slopes and bottom to grade. Fixed scrapers windrow the loosened spoil on each side of the invert, from where bucket elevators lift it 15 ft. up to belt conveyors for side disposal.

Largest Irrigation Canal

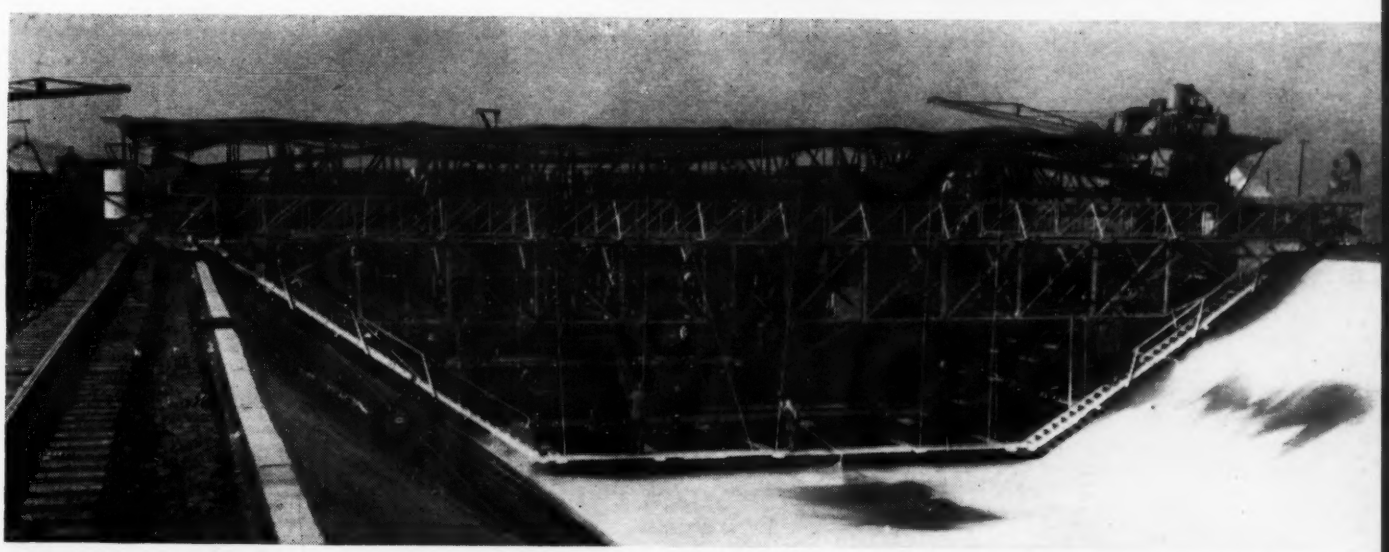
The Delta-Mendota canal, being built by the U. S. Bureau of Reclamation, is the largest man-made lined irrigation canal, 48 ft. wide at the bottom and designed to car-

ry 4,300 cfs. For the Bureau O. G. Boden is construction engineer, Geo. C. Imrie is resident engineer, and O. N. Folsom is field engineer.

I. L. Gebhard, project manager for Everist, designed the equipment, assisted by C. W. Jones consulting engineer, Los Angeles. Vinnell Co., Inc., Alhambra, Calif., built the trimmer. The other rigs were built by the Stockton Iron Works, Stockton, Calif.



4 FOLLOWING CLOSE behind concrete placer (right) is traveling scaffold carrying transverse-joint setting machine (left).

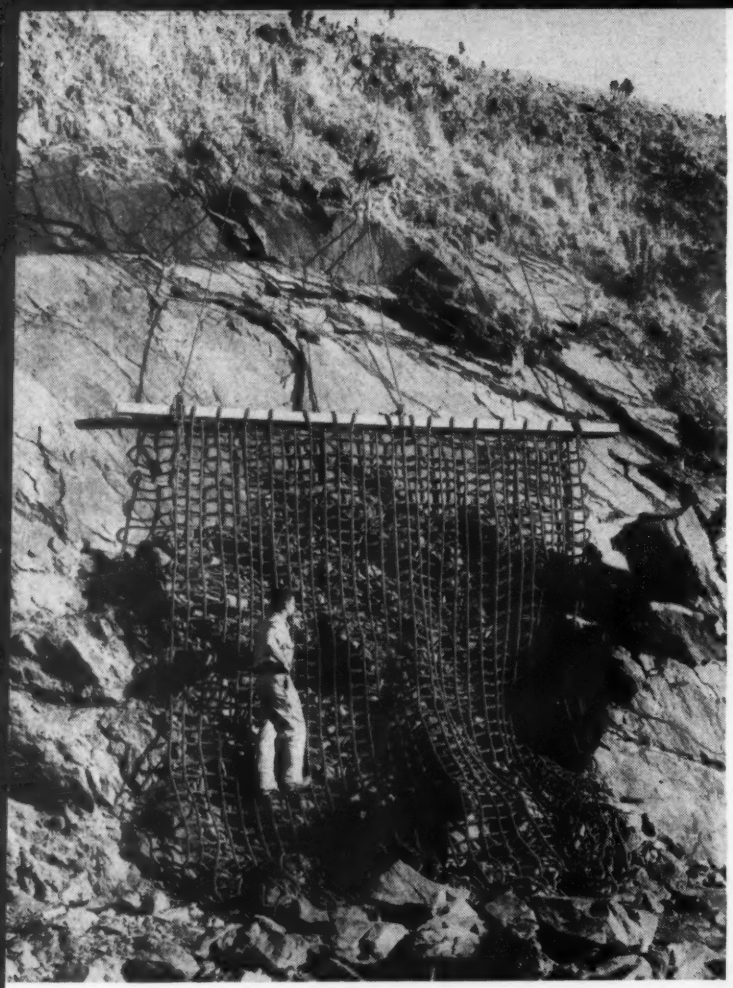


5 FINAL RIG in parade of construction equipment is traveling scaffold for applying curing compound on finished concrete lining. White-pigmented, paraffine-base sealing compound was used.

Calling All Plows

RECEIVING INSTRUCTIONS BY RADIO, plow operator breaks open a snow-clogged highway near Syracuse, N. Y. This is one of radio-equipped plows placed in operation by the Onondaga County Highway Department to battle area's severe snow storms. It is believed to be one of the nation's first installations of this type. Equipped with General Electric two-way F.M. radio, snow plows carry both transmitters and receivers and 6-ft. "buggywhip" antennas. New radio system covers 1,050 sq. mi. of the county.

HOW ...they did it

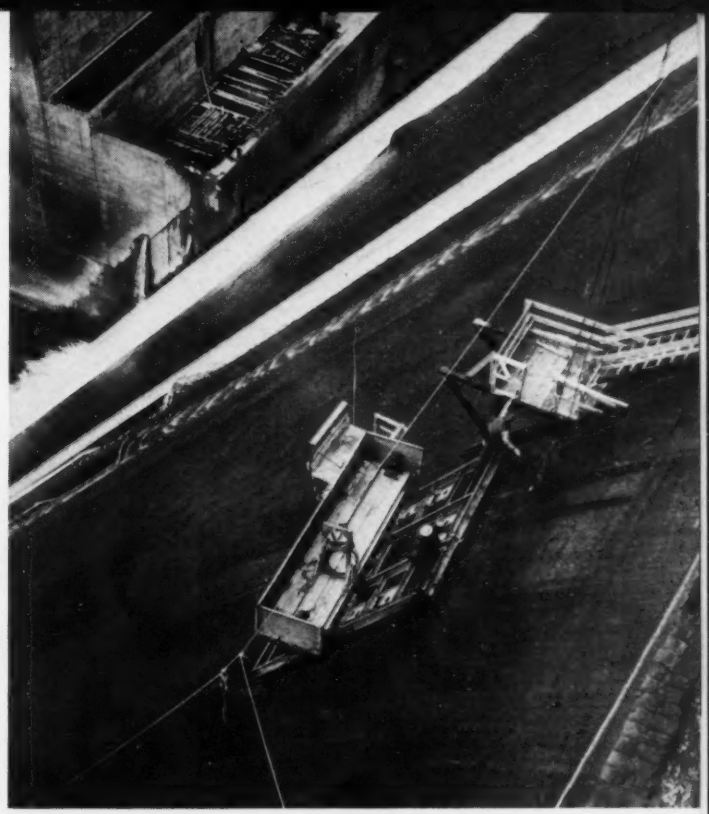


FLYING ROCK FRAGMENTS from blasts on side of U. S. Bureau of Reclamation's Friant-Kern Canal are restrained by hanging on face of cut this huge rope net measuring 16x24 ft. Inspection of net after blast showed rope undamaged.

TO ELIMINATE multiple ginpole setups on storage tank erection, Crown Tank Co., Bronx, N. Y., lifts all shell plates from one point and rolls them to place on pair of plate buggies riding top edge of next lower ring. Each buggy has two grooved wheels which roll on rim of previously erected plates, and two horizontal wheels on lower legs to keep it centered and vertical. Step and upright brace on unit hold plate in position for moving and welding into place in tank shell. Photo, HOBART

SPREADER FOR SPACING wire rope slings (below) facilitates handling of lumber in "packages" by Link-Belt Speeder Cargocrane at yard of Wicker Lumber Co., Niagara Falls, N. Y.

TO FINEGRADE CANAL LATERALS (below), U. S. Bureau of Reclamation forces on Gila Project, Yuma Mesa Division, coupled scraper-type trimmer close to chain buckets of Ruth dredger that excavates ditch. As dredger advances on canal cut, it pulls trimmer in its wake to force excess dirt into path of buckets and leave ditch ready for lining. USBR Photo

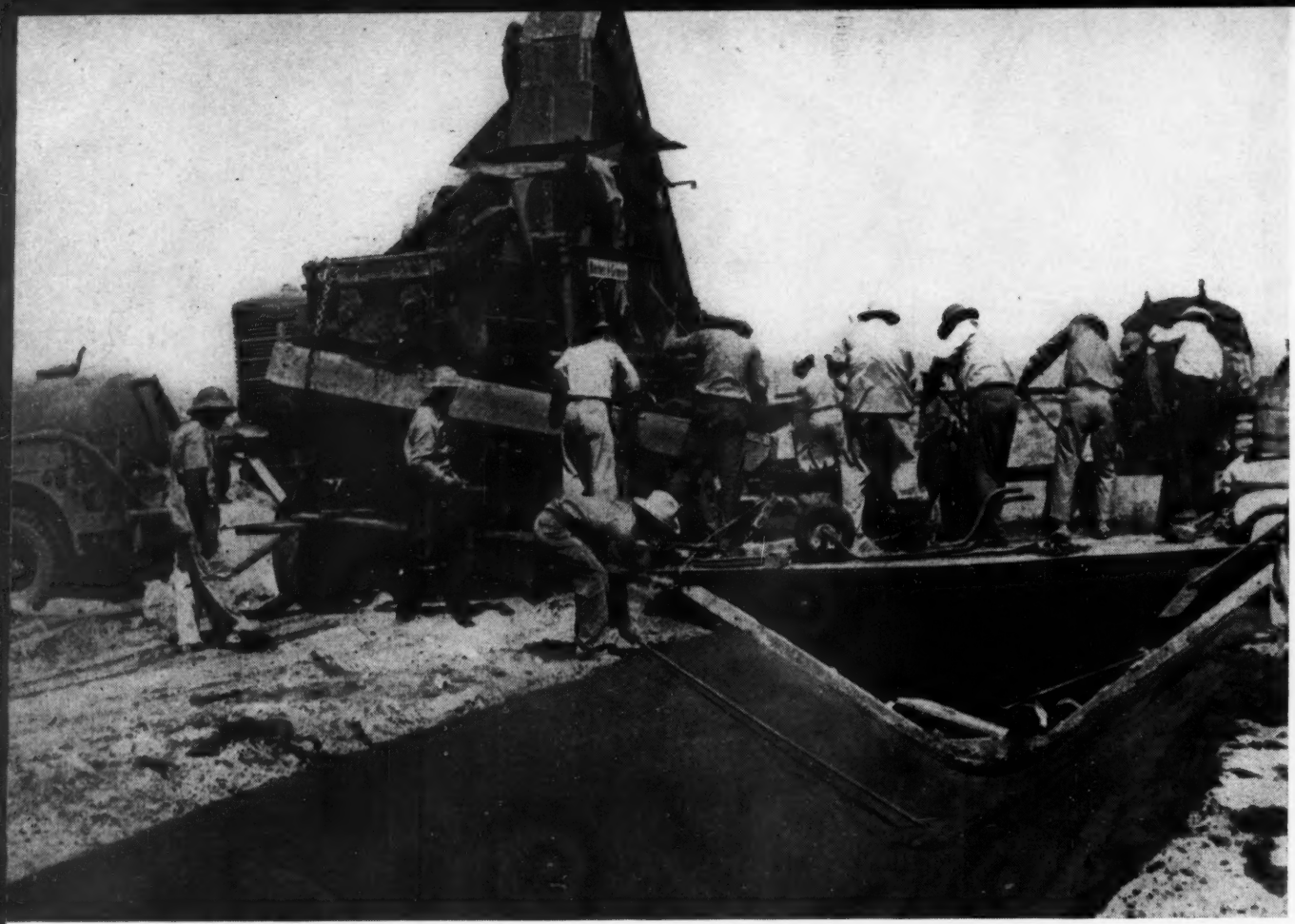


TEMPLATE FOR LOCATING DRILL HOLES sunk in face of Grand Coulee Dam near waterline across spillway, is lowered on to face of dam. Holes in steel plates determine relative positions of diamond drill holes which will secure anchor bolts necessary in fixing position of floating caisson to be used in low-water season of winter to repair erosion in concrete trough at base of dam. Steel framework, surmounted by wooden platform, is shown (at right) on spillway surface of dam. Rails extending length of platform permit horizontal movement. Winch moves platform up or down over template to permit accurate location of diamond drill over holes in templates. Support for diamond drill can be seen in photograph.

→

TO INCREASE CAPACITY of Caterpillar No. 80 scraper building 6 mi. of 50-ft.-high flood protection dike on Coachella Valley extension of All-American Canal in California, Marshall, Haas & Royce, contractors of Indio, Calif., have equipped scraper with side extensions, welded up openings in apron and reinforced pull of tractor on front end by pusher tractor at rear of scraper.

PROTECTIVE "BOOTS" (below) of wrought-iron plate filled with concrete are installed to protect from damage by spalling (below, right) precast concrete piles extending into sea water to support Bass River bridge at Yarmouth, Mass. Boots of ¼-in. corrosion-resistant plate 6 ft. long, formed in two channel sections, are bolted together around lower portion of each pile to form 22x22-in. jacket which is filled with concrete. Use of wrought-iron plate for this application is based on ability of metal to withstand corrosion.



IRRIGATION LATERAL is lined with 2-in. unreinforced soil-cement blanket mixed by travel plant and spread by slip-form paver.

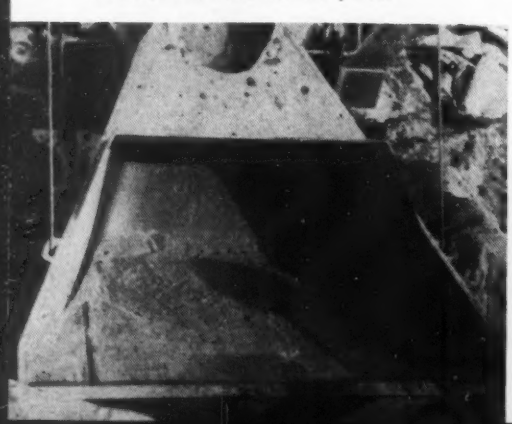
Soil Cement Paving for Small Canals

IN ITS HUNT for economical canal linings, the U. S. Bureau of Reclamation has come up with several interesting schemes for paving small irrigation laterals with soil cement. One of these set-ups is a Barber-Greene travel plant on the bank mixing and feeding soil cement to a sliding form shaped to canal section and pulled along by cable.

Accompanying photographs of Bureau force account work in Arizona on the Gila Project, Yuma Mesa Divsion, show this operation and also some of the steps in its evolution from earlier methods. Using the travel plant, a ½-mi. lateral with 1 on 1½ sideslopes and a 36-in. rounded invert was given a 2-in. lining in 3 days. The mix was 14 percent by weight of cement and selected pit-run sand, with ice-cooled water.

Early separate operations . . .

Natural sand and cement are batched into portable mixer (below, left) alongside canal. Welded inside skip for quick volumetric batching are angle iron strike-off bars, set by measuring weighed batch. Mix is barrowed to sliding form (below, right) pulled by offset hitch on tractor, then vibrated into place.



Succeeded by equipment train . . .

Portable drum mixer on truck trailer chutes soil cement to canal liner. Leading procession is form-pulling tractor followed by water truck, mixer trailer and backing dump truck carrying sand and cement.

Outmoded by travel plant . . .

Barber-Greene rig (above) picks up windrowed sand and cement, mixes it with water in pugmill and discharges mix to chute at rear delivering to slip-form. (Later refinement is belt conveyor replacing chute.) Mixing water is trucked to machine after precooling with ice (above, right) in dammed-up section of completed lateral. Hyster winch on Caterpillar D4 tractor (below) advances sliding form, with another tractor and truck as anchoring deadmen to insure perfect alignment.

Only a Prosperous America Can Be Free

DURING May 50 million American workers will get from the Congress of the United States a real incentive to work.

This incentive is called a tax cut. Beginning May 1, the withholding tax on incomes will be reduced, giving everyone a much-needed increase in take-home pay.

But the tax cut will have a far more important effect. It may be literally a life-saver for American employment and production—and, hence, for the stability of the world. It will help to do two things which must be done if our economy is to continue to furnish good jobs and good earnings.

1. *It will generate part of the private funds for investment in common stocks—the "risk capital" which we need to sustain prosperity.*
2. *It will provide part of the incentives necessary to make American business management still more effective.*

These two predictions are not advanced as matters of opinion. They are based on facts reported by McGraw-Hill field editors.

These facts show why the reductions in upper bracket income tax rates are most significant for our continued prosperity. For the first time in more than twenty years the tax burden on people who can afford to risk their savings has been lightened. To find out what this will mean to the economy, McGraw-Hill field editors all over the nation asked a group of business executives making $15,000 a year or more how they will use the money which the tax cut gives them. Here is what they said:

1. They plan to save—not spend—three-fourths of the money they keep as a result of tax reduction.
2. They plan to invest one-half of these savings in common stocks. If all persons making over $15,000 follow this pattern, they will make available about a half billion dollars of risk capital for American industry.

WHAT THE TAX CUT WILL DO

What will upper bracket taxpayers do with their tax savings?
What can business expect as a result?

TO ANSWER THESE QUESTIONS, McGraw-Hill field editors interviewed a carefully selected sample of business executives earning $15,000 a year or more. Here, for the first time, are solid facts that show how tax reduction will effect the supply of risk capital and business incentives. These are the results:

1) How much of your tax reduction will you save? **74%**
2) How much of your tax savings will you invest in common stocks? **52%**
3) Will lower taxes lead you to switch some of your investment in bonds to stocks? **Yes 28%**
4) Have you passed up an opportunity to invest in a new business in the last five years because the return after taxes did not justify the risk? **Yes 40%**
5) Will lower taxes make you more inclined to take a risk on a new business? **Yes 80%**
6) Have you turned down the opportunity to take a bigger job in the last five years because taxes would take too much of the additional income offered? **Yes 13%**
7) Do you know of actual cases of executives who have turned down bigger jobs or more work because of taxes? **Yes 38%**
8) Will lower taxes make you more inclined to take on a bigger job or more work? **Yes 59%**

3. They also will switch some of their present savings from bonds and bank accounts to common stocks. This might easily add a billion dollars or more to the supply of risk capital.

The one-half billion dollars of tax savings and the funds switched from other investments into common stocks is not enough to end the shortage of risk capital. But it is a start.

Before passage of the tax law, risk capital had been growing increasingly scarce.

One measure of the scarcity is that last year only four-tenths of 1% of national income went into new common stocks. In 1925, a year of normal prosperity, almost 3% of national income was invested in new common stocks.

Another measure is that between 1940 and 1947 people actually reduced their holdings of corporate stocks and bonds by nearly a billion dollars. During the same period, people salted away almost $150 billion in such safe havens as cash, bank deposits, and government bonds.

This drought of risk capital hit us just when we need a vastly increased flow of risk capital to finance the expansion and improvement of our American productive machine. We need risk capital to search for new oil fields and to build new pipelines and refineries. We need capital to expand our over-loaded electric and gas utilities. We need it to finish re-equipping our airlines and railroads and bus lines. We need it to modernize our textile production. We need it to keep pace in the magical, booming chemical industries. We need it to launch the new industry of television.

We need capital for all this work and for much more besides. And we must do all this work if we are to keep the United States dynamic and if we are to create new and better jobs.

The tax cut comes just in time. As the last editorial in this series showed, the flow of risk capital must double or triple if we are to avoid a cutback in industrial expansion next year. A major reduction in industrial expansion because of a shortage of risk capital would menace our prosperity. Whenever capital expansion has sagged, the whole economy has sagged. That is the record. That is why every American has a crucial interest in breaking the shortage of risk capital.

The tax reduction now going into effect helps relieve that shortage. In my opinion, we need still other tax changes to assure enough risk capital for healthy industry and healthy employment.

We should encourage the rapid depreciation and replacement of plants and equipment to keep America efficient.

We should eliminate the double taxation of stockholders' incomes.

We should permit full averaging of good years and bad in calculating income tax payments.

We should cut tax rates again as soon as we can.

The tax cut of 1948 will prime the flow of capital. We must keep it flowing.

The tax cut also encourages our successful men and women to work harder and more effectively.

The McGraw-Hill editors collected some solid facts to show how seriously heavy taxes have discouraged business leaders. Here they are:

1. One out of seven persons the editors questioned said that they had turned down positions with greater responsibilities because heavy taxes would take most of the greater pay that went with the harder job.

2. Six out of ten executives would be more inclined to accept a more responsible job now that taxes will let them keep more of the added pay such a job would bring.

We all have a stake in incentives which make men work harder, especially talented men. The more we each work, the more we all have.

The tax reductions so far made will leave the government more than enough revenue to meet all its expenses, including the proposed defense expenses, and still reduce the national debt. If more defense money becomes necessary, vigorous economy on less essential government expenses will make possible both stronger military defenses and a better tax system. We need both.

Only a prosperous America can be strong enough to remain free — and to help keep the rest of the world free.

President, McGraw-Hill Publishing Company, Inc.

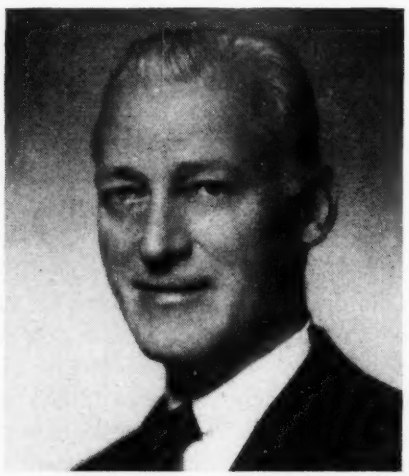
THIS IS THE 67TH OF THE SERIES

Present and Accounted For···A PAGE OF PERSONALITIES

30-MONTH WAGE STABILIZATION AGREEMENT affecting nearly 200,000 construction workers in greater New York area was negotiated March 15 between Building Trades Employers' Association of New York and Building and Construction Trades Council, AFL. Left to right: WILLIAM G. WHEELER, secretary BTEA; AUGUST P. PETRILLO, cut stone contractor; FRED J. DRISCOLL, president, George F. Driscoll Co.; R. B. MILLER, secretary, Heating, Piping and Air-Conditioning Contractors N. Y. C. Assn.; and ROGER H. CORBETTA, Corbetta Construction Co. Inc.

C. H. MOTTIER, vice-president and chief engineer, Illinois Central Railroad, of Chicago, was elected president of the American Railway Engineering Association at its annual meeting March 16-18.

EARL L. REEB is new director of Ohio Department of Highways. After graduating in civil engineering from Ohio Northern University in 1910, he spent 30 years in engineering business for himself and with contracting companies before joining Ohio highway department as assistant division engineer at Toledo.



J. RICH STEERS, JR., president of 44-year-old New York contracting firm that bears his name, was elected president of The Moles, New York society of tunnel and heavy-construction men, at annual meeting of that organization May 5. Specializing in waterfront improvements, firm of J. Rich Steers, Inc. is now rebuliding war-damaged harbors in Greece at Salonika, Piraeus and Volos and Corinth canal. Mr. Steers is graduate of Princeton University and is veteran of World War I with service in France and Italy. His company has participated in construction of drydocks and piers at Brooklyn Navy Yard and a shiploading pier at Leonardo, N. J., which extends more than 2 mi. offshore, claimed to be longest ship pier in Atlantic.

FROM MANAGER of CONSTRUCTION METHODS and Engineering• News-Record the last 10 years and publisher of both magazines since 1945, ALBERT E. PAXTON (left) has been promoted to district manager and regional vice-president at Chicago for McGraw-Hill Publishing Co. Changes in editorial staff assignments transfer VINCENT B. SMITH (below, left) from regional editor of both papers in Chicago to the McGraw-Hill Washington Bureau, and HENRY T. PEREZ (below) from assistant editor of CONSTRUCTION METHODS in New York to regional editor of both magazines at Chicago.

P. F. LOISELLE (below), president, Triangle Construction Co., Kankakee, Ill., is new president of Associated General Contractors of Illinois. Mr. Loiselle has been in construction work since 1917 when he became associated with F. L. Shidler in the paving business.

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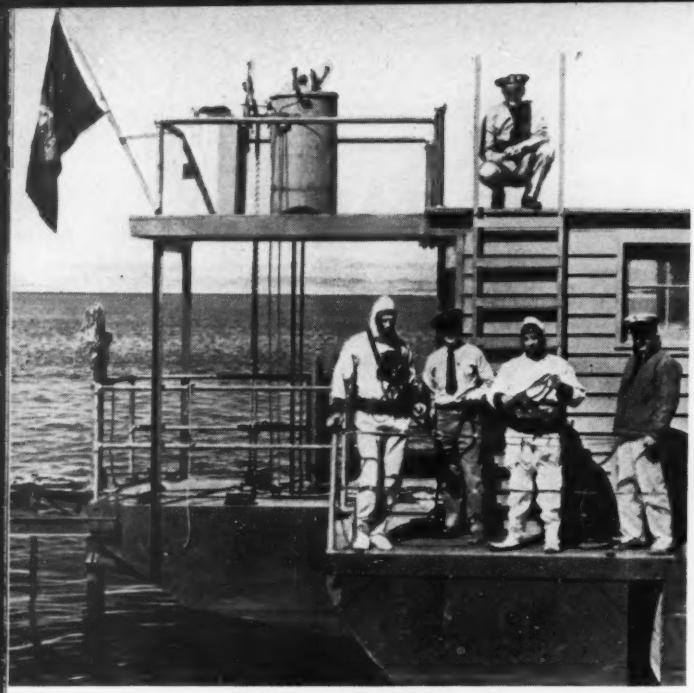
JOB oddities



INLAND NAVY will help Bureau of Reclamation make sedimentation survey of Lake Mead, Hoover Dam's reservoir. Navy lieutenant and six petty officer divers will take sedimentation samples, make underwater pictures and reservoir-bottom contour maps from soundings, using 21x107-ft. barge made from Seabee pontoons trucked overland as base. Survey will disclose extent of reservoir silting during last twelve years. U. S. Navy Photo

GARGANTUA OF DRAGLINE BUCKETS is this 30-cu.yd. scoop which Page Engineering Co. delivered to strip mines of Northern Illinois Coal Corp., in Wilmington, Ill., for use on Marion 7800 dragline machine.

MULTI-MILLION DOLLAR LOADS are handled by Lorain truck-crane as 4,000 safe deposit boxes of Kansas City National Bank & Trust Co. are moved to new building. No box was opened. Two-ton, 4x8-ft. steel sections of 225 boxes each were hoisted through hole cut in sidewalk above bank's basement vault and loaded on trailer for transport under police guard to new location.

UNUSUAL TRAFFIC (below) used main street in business district of Hutchinson, Kansas, when four frame houses purchased by war veterans were trucked 65 mi. to new sites at war housing project near Wichita. Press Assn. Photo

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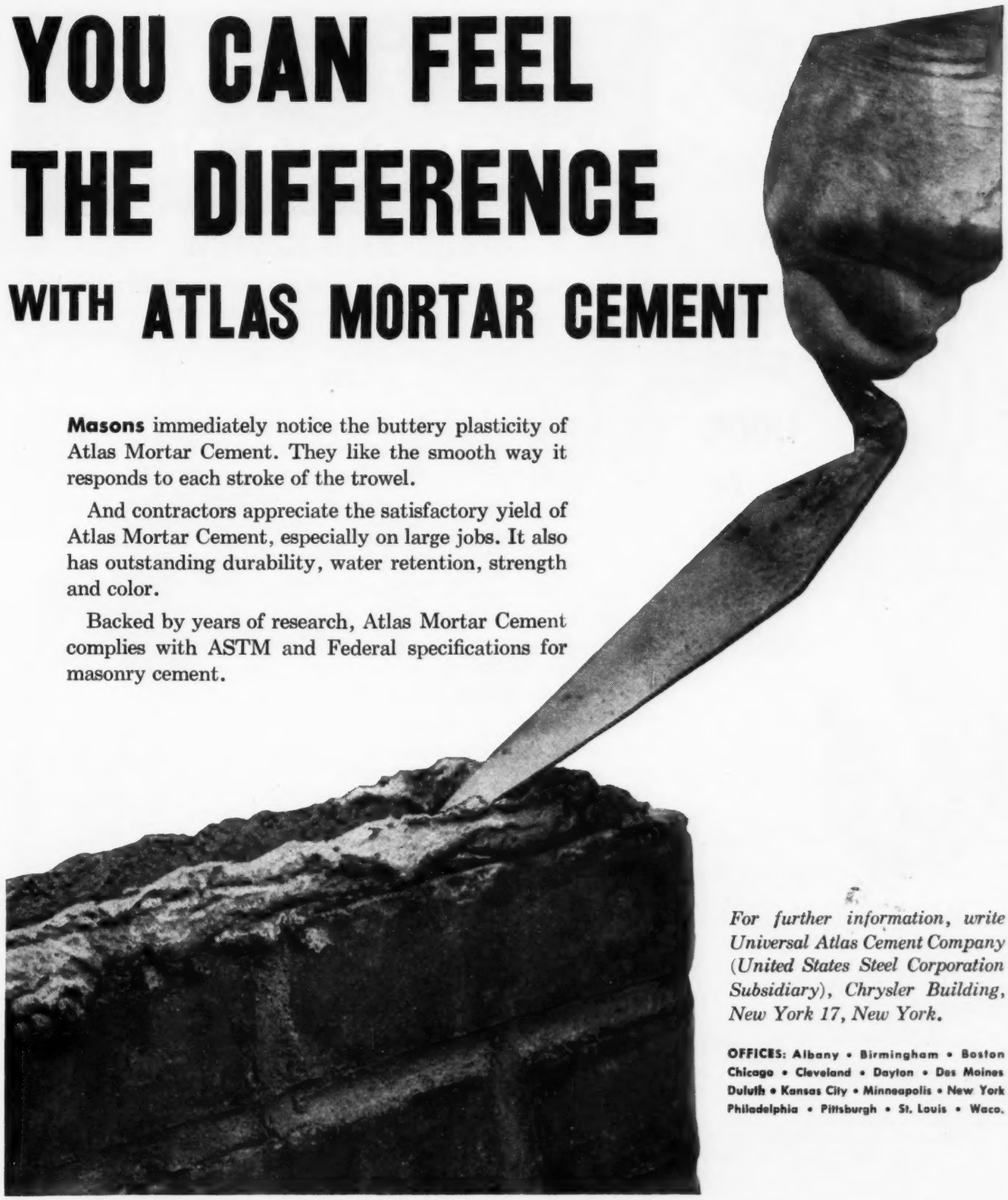

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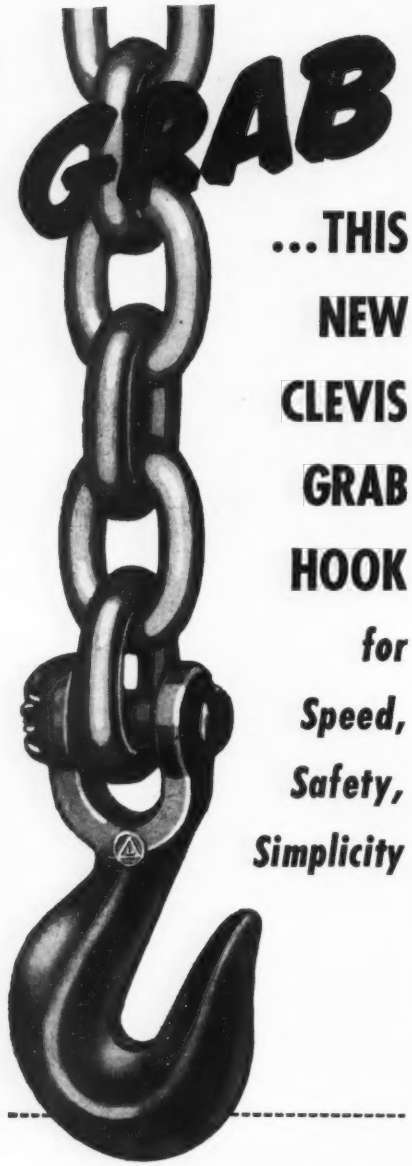

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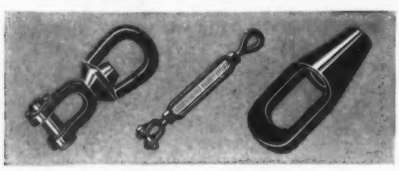

CONSTRUCTION EQUIPMENT NEWS

MAY 1948 REVIEW of Construction Machinery and Materials

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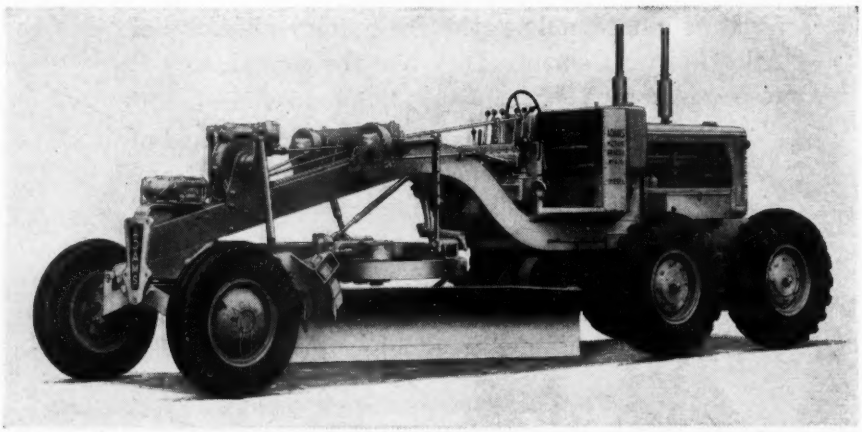

POWERFUL MOTOR GRADER—New 100-hp. No. 610 is largest, heaviest and most powerful grader ever introduced by Adams organization. Powered by 100-hp. International diesel engine. Weighs more than 25,000 lb. without accessories. Ample traction is provided by 18,000-lb. weight on rear wheels. Power steering plus push-button cab controlled electrical starting are furnished as standard equipment. Machine has full-floating rear axle, a 12-ft. blade 31 in. wide, 8 forward speeds, ranging from 2.6 to 25.2 mph. Hydraulic brakes on all four tandem drive wheels.—**J. D. Adams Mfg. Co., Indianapolis, Ind.**

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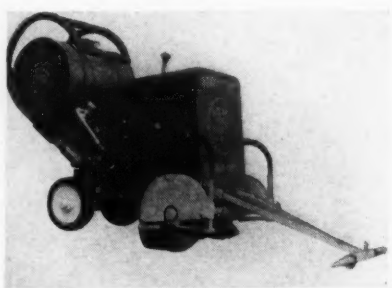

CONCRETE CUTTING MACHINE—Equipped with diamond abrasive cut-off wheels, machine for cutting pavements of all types is powered with two-cylinder 10-hp. gasoline engine. Tank carries water which floods wheel when in cutting position. Machine accommodates wheels up to 18 in. dia., permitting a 6½-in. maximum depth of cut. Spindle is mounted on ball bearings and is double-ended, permitting either right- or left-hand use of cutting wheel.—**Felker Mfg. Co., Torrance, Calif.**

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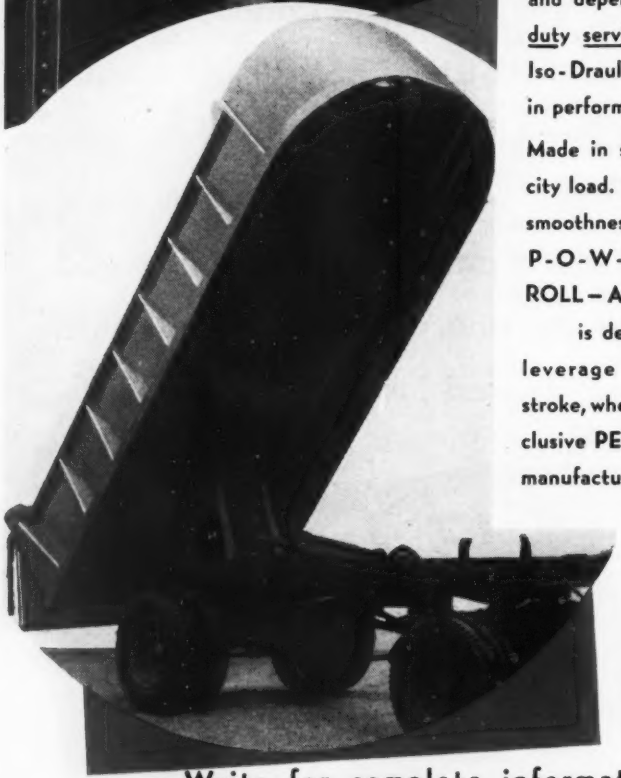

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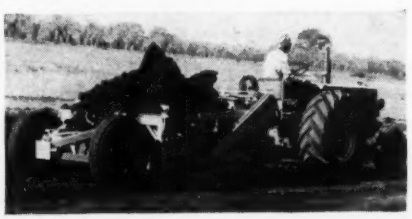
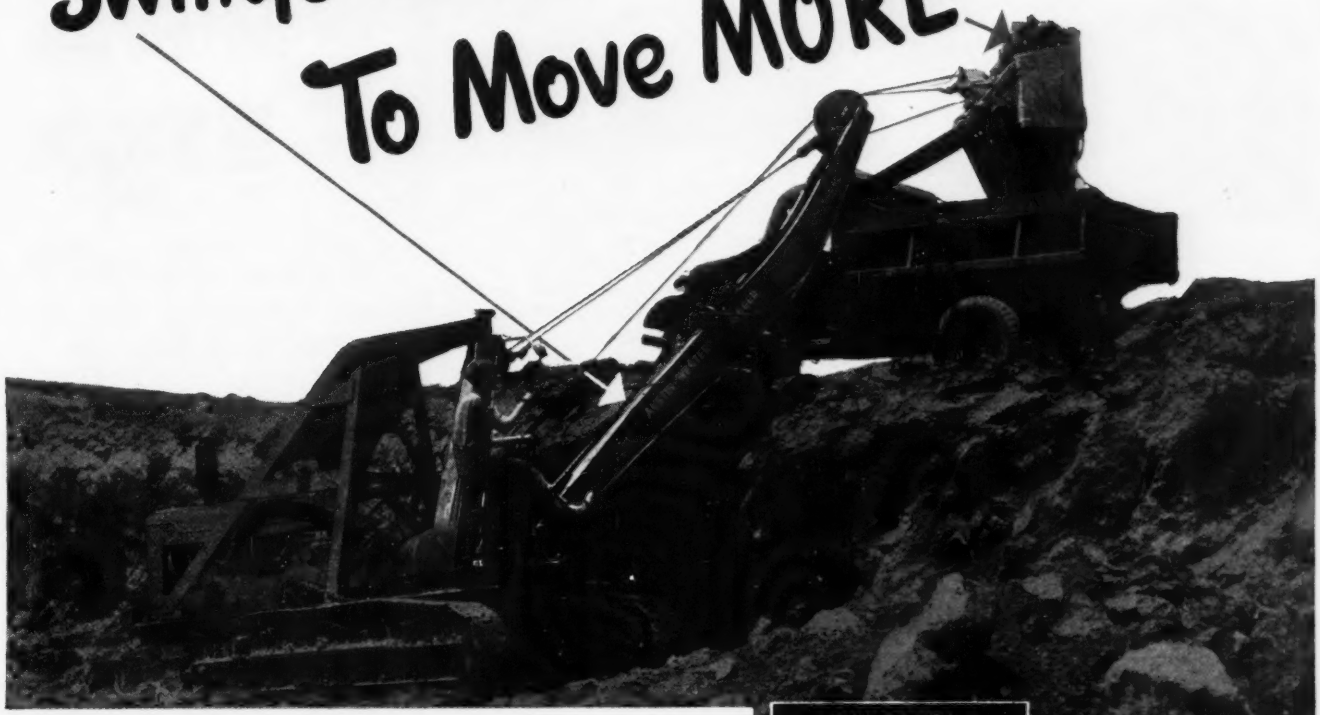
MOBILE TOWER-CRANE—New development of Towermobile is addition of crane boom to chassis to enable contractor to perform other operations with same piece of mobile equipment. Tower can be driven to job and erected in 10 or 15 min. to hoist concrete or building materials. In addition to this operation, there is now available a 20-ft. boom with a lifting capacity of 9,000 lb. on a line 7 ft. to the rear of the truck chassis. Tower can be completely removed from chassis and set to one side by machine's own boom. The 20-ft. crane boom can be increased in length in increments of 10 ft. up to a maximum of 40 ft. Boom swing is 360 deg. and elevation is 85 deg. Standard tower section is 35 ft. high with one 10-ft. extension to give a maximum hoisting height of 45 ft. Lifting capacity of tower section is 6,000 lb. Accessories available with hoisting tower are a 1½-cu. yd. concrete hopper and a 6x6-ft. materials platform.— **Mixermobile Manufacturers, Portland, Ore.**

283



HYDRAULIC SCRAPER — Two-wheel Speedhaul units are designed for use with fast rubber-tired tractors and have heaped bowl capacities of 3.2 and 5.4 cu. yd. Cut, lift, dump and spread operations are fully hydraulic. Forced "roll-out" ejection dumps load quickly and cleans bowl. Powered apron rises independently of bowl to insure maximum loads. Wheels on tapered roller bearings are cantilever - mounted. — **Be-Ge Manufacturing Co. Gilroy, Calif.**

Swings LESS To Move MORE



SHOVEL

With the Badger, only the bucket, boom, turntable and mast swing. The heavy main deck, engine, transmission and main frame are STATIONARY—to counterbalance heavier loads and avoid objectionable tail-swing.

The Badger makes more swings per minute, day, month and year . . . wastes no fuel or power swinging extra weight . . . digs the hardest "diggable" material . . . can work in closer quarters.

Profits are made by working fast and saving time. Clipping a few seconds off each dig-swing-dump cycle means more yardage at the close of the day.

Before you take delivery of another shovel, ask your nearby A-W Distributor to tell you the whole story of the convertible Badger.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS

DRAGLINE

TRENCH HOE

Also Convertible to Crane, Piledriver, Etc.

BUILDERS OF ROAD MACHINERY SINCE 1859

Austin Western

LONGER LIFE

FOR BALL AND ROLLER

BEARINGS

Your investment in anti-friction bearings is certainly great enough to warrant your investigating the possible savings to be made through the use of LUBRIPLATE lubricants. They actually preserve bearing surfaces, arrest progressive wear and protect against rust and corrosion. There are LUBRIPLATE lubricants for all speeds, all operating temperatures and conditions. Write for particulars.

℞ FOR YOUR MACHINERY

No. 2 — Ideal for general oil type lubrication, ring oiled bearings, wick feeds, sight feeds and bottle oilers.

No. 8 — Because of high film strength and long life it reflects outstanding performance in most types of enclosed gears (speed reducers).

No. 107 — One of the most popular grease type products for general application by pressure gun or cups.

No. 70 — For a wide range of grease applications, especially at temperatures above 200 degrees F.

No. 130-AA — Known nationwide as the superior lubricant for open gears, heavy duty bearings, wire rope, etc.

BALL BEARING — This is the LUBRIPLATE Lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.

(For more information on new products, use coupon, p. 116.)

284

CABLE-CONTROLLED TRACTOR EQUIPMENT — Complete line of cable-controlled equipment, for use with new International TD-24 crawler tractor includes bullgrader, bulldozer, scraper and ripper. High-test steel castings are used in combination with weldments. Cable and sheaves are protected by steel guard. Cable reeving is uncomplicated and large sheaves are mounted on roller bearings and placed well out of the way of dirt. Full operating visibility is claimed as feature of bullgrader and bulldozer. Scraper has struck capacity of 22 cu. yd. Low center of gravity of scraper makes for speed and stability in field operation. Scraper apron can be easily converted from conventional solid type to hinged type for fast ejection of stickiest materials. Double-curve cutting edge "boils" earth upward into apron and bowl with minimum compacting. Front-mounted hoist tackle and widespread rear wheels insure maximum stability. New heavy-duty ripper has detachable alloy steel standards angled for natural digging action. Power for new TD-24 tractor equipment is controlled either by a front- or a rear-mounted power control winch, either a single or a double-drum unit with planetary drive to eliminate need for frequent adjustments. — **Bucyrus-Erie Co., South Milwaukee, Wis.**

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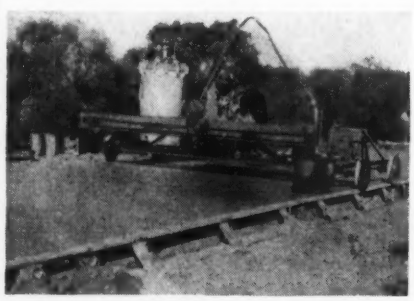
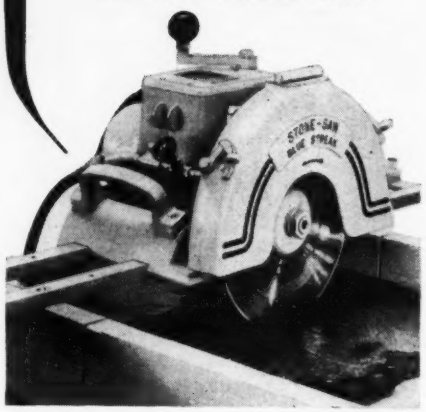


AUTOMATIC SPRAY MACHINE— Single-nozzle machine, riding on forms, applies membrane curing material to concrete pavement, is fully automatic in operation and includes remote control start and stop attachment. Double sprays each square foot of concrete. External-mix type spray gun does not foul or drip. Machine equipped with 60-gal. constantly agitated pressure tank is available in widths from 10 to 25 ft.—**Flex-Plane Co., Warren, Ohio.**

Cut 7 to 10 times FASTER— ON THE JOB with a STONE

Blue Streak

MOST POWERFUL PORTABLE ELECTRIC GUIDED SAW



CUT WET OR DRY

using Diamond or Abrasive Wheels

BRICK • TILE • TERRAZZO
MARBLE • SLATE • GRANITE
ASBESTOS PRODUCTS • REFRACTORIES
CONCRETE and CONCRETE PRODUCTS
LIGHT STRUCTURAL STEEL and PIPE

WEIGHING ONLY 78 LBS., The Stone Blue Streak is rated 2½ H.P. — 110 universal or 220 single phase. Will cut 5-inch depth of cut and up to 10 feet in length with a 14-inch wheel.

Write us today for further information

STONE MACHINERY CO., INC.

Dept. CM4 Box 1363 Syracuse, N.Y.

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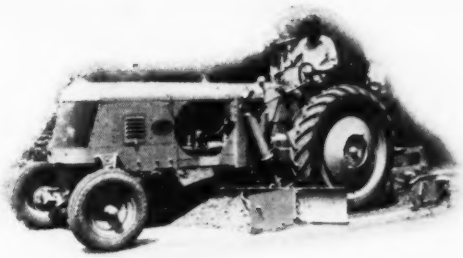
HIGH SPEED CUTTING MACHINERY

HUBER ROAD MACHINERY

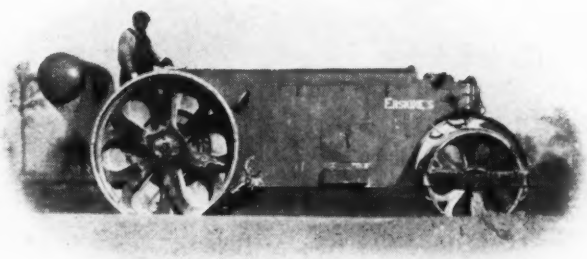
Don't let high road building or maintenance costs get you down . . . or machinery inadequate for your particular needs eat up your budget.

There is no need for it when you can turn to Huber Road Machinery with definite assurance that it will not only lick high costs but protect the budget dollar as well.

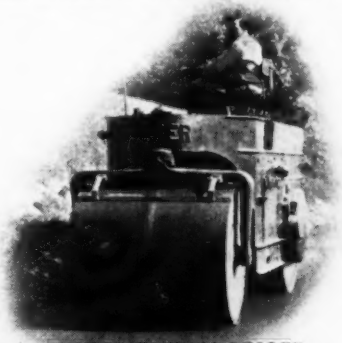
Your local Huber distributor will gladly demonstrate all of the Huber features to you . . . and what they mean to you in dependable, low cost service.



HUBER MAINTAINER
Just the machine for cutting maintenance costs on light jobs. It is a bulldozer, lift-loader, patch roller, snowplow or rotary broom—all in one.



HUBER 3-WHEEL ROAD ROLLER
Automotive type. In sizes from 5 to 12 tons. The result of 35 years of experience.



HUBER TANDEM ROLLER
Variable weight—it gets around easily and economically. From 3 to 12 tons.

THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

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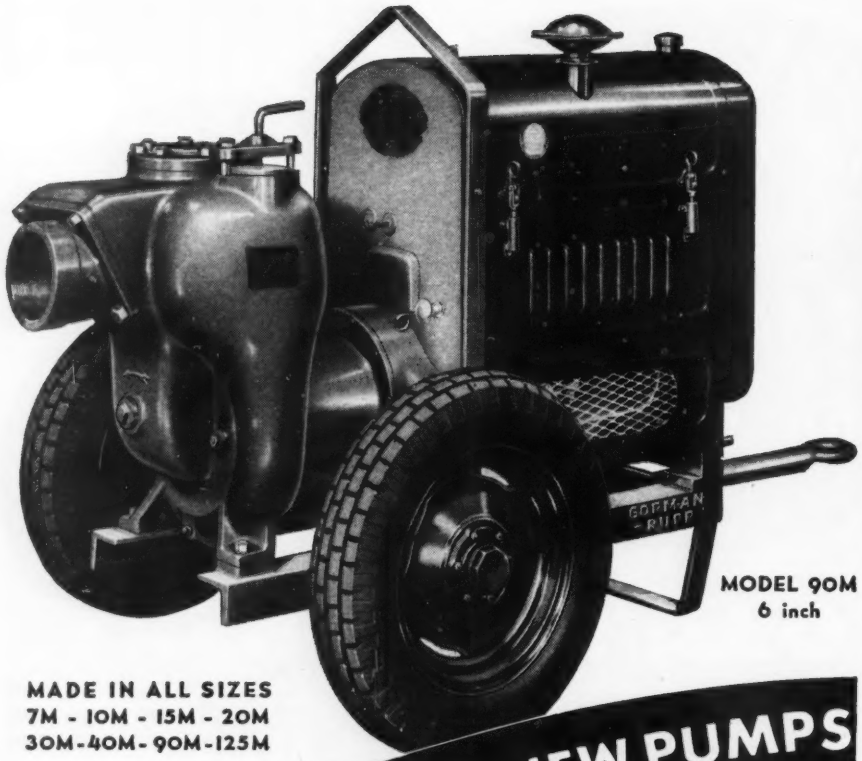
3 Wheel • Tandem
ROAD ROLLERS *and* MAINTAINERS



MODEL 90M
6 inch

MADE IN ALL SIZES
7M - 10M - 15M - 20M
30M-40M-90M-125M

GORMAN-RUPP'S NEW PUMPS

WE CHALLENGE ANY PUMP TO MATCH THEIR PERFORMANCE

With a new complete line of Contractors' Pumps, Gorman-Rupp has topped their own past high record of performance with a better pump --

-- **QUICKEST PRIMING**

-- **HIGHEST PRIMING**

-- **PUMPS MORE DIRTY WATER**

Compare them for priming speed:

The new Model 15M (3") primes at 25 ft. suction lift in 61 seconds.

The new Model 90M (6") primes at 25 ft. suction lift in 44 seconds.

And the Gorman-Rupp is still the most simple pump --

No ports, no valves, no clean-out plates, nothing to cause stoppages.

Write for the new Contractor's Bulletin 8-CP-11

THE GORMAN-RUPP
Guarantee

Our distributor's are authorized to put a Gorman-Rupp Contractor's Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water, more hours, using less gasoline, to prime quicker and at higher suction lifts than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

286

CONVERTIBLE POWER SHOVEL—Buckeye Model 70 Clipper is ¾-yd. machine with new revolving frame designed for tough excavation. Heavy conical roller assembly adds strength. Positive locking device is used on crawler adjusting bolt. Front end conversion units allow shovel to be operated as crane, trench hoe or dragline. Mevac vacuum power control is applied to all operations of each front end attachment as standard equipment. Machine is powered by three-cylinder GM Model 3-71 diesel engine with hydraulic coupling or with a Chrysler 8-cylinder gasoline engine as optional equipment. With 18-ft. boom and 14-ft. 4-in. dipper stick and ¾-yd. dipper, shovel has clear dumping height of 14 ft. 1 in. at 40-deg. angle. With trench hoe attachment, machine digs trench up to 15 ft. deep and 39½ in. wide.—**Gar Wood Industries, Inc., Findlay, Ohio.**

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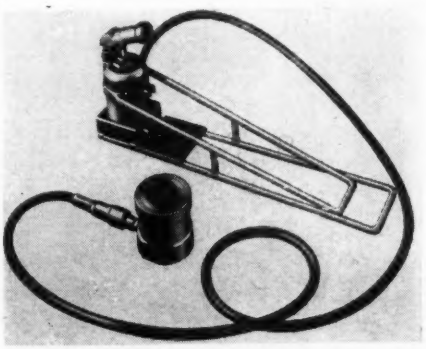
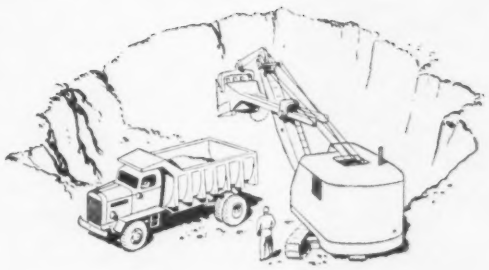


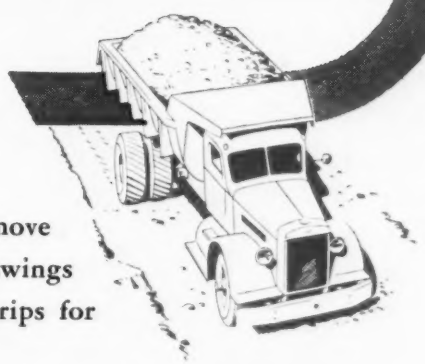
HYDRAULIC JACK—New "Lo-Hite" for industrial lifting jobs in close quarters is fitted with independent pump connected to jacking mechanism by a length of rubber tubing. Pump can be operated from any convenient place while jack itself is spotted in close, confined positions otherwise impossible of access. Oil in jack is sealed in, completely isolated from jack exterior, thus permitting use in both vertical and horizontal positions. When not in use, the "Lo-Hite" folds into a compact easy to carry unit.—**Duff-Norton Mfg. Co., P. O. Box 1889, Pittsburgh 30, Pa.**



CUMMINS DIESEL

SINCE 1919 ... PIONEER OF PROFITABLE POWER THROUGH HIGH SPEED DIESELS

Big Loads... Fast Work Cycles



Power and *more power* . . . the kind you need to move more material . . . the kind that means faster swings and dumps for your shovels . . . quicker trips for your trucks.

This *plus-power* of the Series NH-600 (200 hp, max.) and NHS-600 Supercharged (275 hp, max.) Cummins ***Dependable*** Diesels results in big loads, fast work cycles, more work from your heavy-duty equipment.

Ask your Cummins Dealer to study your power problems with you . . . see why "more power" will mean "more profit" on your job.

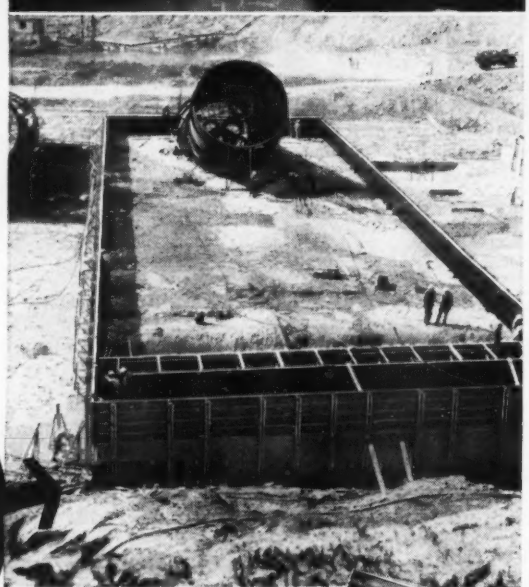
CUMMINS ENGINE COMPANY, INC.
COLUMBUS, INDIANA

BLAW-KNOX

applies its STEEL FORM *"Know How"*
TO CONCRETE GRAVITY DAMS

Blaw-Knox has proved the practicability of its forming method for pouring concrete monoliths of gravity type dams—a design of steel form which is easily handled through successive lifts—and which can easily be aligned for all job conditions.

It would be our pleasure to tell you about this tried and proved system of BLAW-KNOX STEEL FORMS for concrete monoliths. You will incur no obligation by asking for this information.



This accurate alignment is quickly achieved by mechanized adjustment.

Blaw-Knox STEEL FORMS have been serving engineers and contractors for over 40 years. The Blaw-Knox record of accomplishment is shown in Catalog 1836. Send for a copy.

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BLAW-KNOX *has the* STEEL FORM "Know How"

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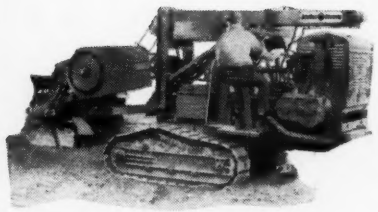

DITCHING MACHINES—Two new ditching machines (models 720 and 710) feature three-position boom quickly adjustable to dig close to obstructions. Model 720 is for digging trenches 8 to 11 in. wide and up to 4 ft. deep: It is of vertical boom design, digging straight down and has self-cleaning buckets. Digging speeds are as high as 32 ft. per min. Spoils conveyor is adjustable to either side. Model 710 is for trenches up to 5½ in. wide and 42 in. deep Both machines are equipped with overload release to prevent damage from heavy boulders. Booms are equipped with hydraulic hoists for power lift and controlled gravity lowering.—**Barber-Greene Co., Aurora, Ill.**

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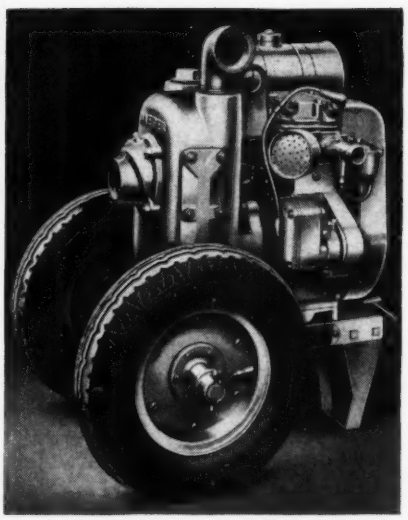


PORTABLE HIGH PRESSURE PUMP— At 10-ft. suction lift, 2-in. portable pressure pump weighing only 150 lb., including pneumatic tires and mounting frame, has range of volumes and pressures from 135 gpm. at 10-lb. discharge pressure to 30 gpm. at 60-lb. discharge pressure and a maximum shutoff pressure of 70 lb. Powered by 5-hp. Wisconsin air-cooled gasoline engine. Open-bladed or trash-type impeller combines high pumping efficiency with ability to handle large solids. Impeller discharges upward from bottom of shell, violently agitating sediment and forcing it out with flow of water. Maker stresses exclusive "sure-prime" feature.—**Jaeger Machine Co., Columbus 16, Ohio.**

NOW! THE MOST POWERFUL FORD TRUCKS EVER BUILT!

New Ford BIG JOBS! Box car size! Up to 48% higher weight ratings than previous biggest Ford Trucks!

New Ford *Bonus* Built* BIG JOBS rated for up to 37,000 lbs. Gross Train Weight and 21,500 lbs. Gross Vehicle Weight give you the "freshest" thinking in big-truck engineering.

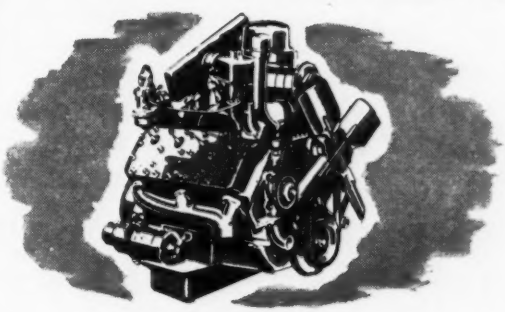
It's down-to-earth engineering, too, backed by over 30 years of truck building experience. The new BIG JOBS are as fit-for-the-job as the world's greatest truck know-how can make them. Ford truck know-how is unequalled because no other truck builder has built as many trucks.

Owing no allegiance to outdated big-truck design formulas, Ford Truck engineers designed an original creation offering a new 145 h.p. V-8 engine . . . up to 10.00-20 tires . . . up to 16-in. by 5-in. rear brakes . . . 5-speed transmission . . . and extra heavy duty construction throughout.

See the new Ford BIG JOBS which head a lineup of over 139 new *Bonus* Built* models. Visit your Ford Dealer today!

***BONUS:** *"Something given in addition to what is usual or strictly due."— Webster*

NEW! ROUGE 337 TRUCK V-8



145 HORSEPOWER
255 LBS.-FT. TORQUE

Most powerful engine ever offered in a Ford Truck! 337 cu. in. displacement. 4-ring aluminum alloy pistons with top ring porous-chrome-plated for better lubrication, long bore life. Hydraulic valve lifters to maintain zero-lash valve adjustment automatically. Exhaust valves faced with hard cobalt-chrome alloy. Dual throat concentric carburetor, correct metering at all operating angles and integral vacuum-type governor. New Loadomatic ignition.

Listen to the Ford Theater, Sunday Afternoons, NBC network. See your newspaper for time and station.

FORD 1948 *Bonus Built* TRUCKS 1948

BUILT STRONGER TO LAST LONGER

LIFE INSURANCE EXPERTS PROVE AND CERTIFY...FORD TRUCKS LAST UP TO 19.6% LONGER!

HIGHWAY ENGINEERS **SPECIFY**

and CONTRACTORS **USE**

The JACKSON VIBRATORY PAVING TUBE

DON'T BE LATE FOR '48! GET THESE ADVANTAGES!

Important savings in cement can be made. Finishing progress is much more rapid. Concrete at forms and joints is puddled perfectly. Spreading costs reduced. Complete compaction and excellent finish obtained with less labor.

The JACKSON Paving Tube is perfectly adaptable to slabs 6" to 24" thick, without affecting the efficiency on single or two-course standard plain or reinforced concrete pavement construction and may be quickly adjusted from 10' to 25' widths in the field. Power Plant mounted on the Finisher has ample reserve power through entire frequency range of 3000 to 5000 VPM. Finger tip controls. Quickly and easily attached to any standard finisher — and can be attached to the rear of standard spreaders to advantage for vibrating the first course in thick slab construction. One of the best investments in equipment a paving contractor can make. See your Jackson distributor or write for further information **NOW.**

Manufactured by ELECTRIC TAMPER & EQUIPMENT CO. *for*
JACKSON VIBRATORS, INC. LUDINGTON, MICH.

290

CONCRETE PAVING FINISHER—Independent control of traction and screeds is provided by new automotive type transmission. Selective control provides operator with sixteen combinations of screed and traction speeds, claimed to be an advantage in finishing air-entrained concrete. Equipped with 27-hp. engine and with vibratory paving attachment. There is a quick adjustment for crown and the screeds have a telescopic width adjustment. End trucks of unit type are moved over on main structural members for width changes. V-Belt drive with automatic take-up absorbs shock of starting and stopping. Machine has hydraulic screed lifting system.—**Blaw-Knox Co., Pittsburgh, Pa.**

Construction and Engineering for

PNEUMATIC PRESSURE GROUTING INTRUSION and CONCRETE WORK

RESTORATION—and strengthening of weak, ruptured or impaired structures.
SOIL STABILIZATION—by deep subgrade consolidation of filled ground, silt deposits or other unstable ground formations.
SEALING—of subterranean flows of water under buildings, dams, and other structures. Construction of submerged Dams, Groundwater control for Mines, Subways, Aqueducts, Seawalls, etc.
CEMENTATION—of loose or fractured rock strata, gravel or rip-rap deposits to prevent danger from slides, falls, or infiltration.
PRESSCRETE FOUNDATION PILES—built-in-place without vibration, noise or ground disturbance. No limits to length, size or shape.
PRESSCRETE ENCASING—For repair or protection of maritime foundation piling attacked or endangered by teredos, dry-rot, fire, rust, impact, abrasion or other marine hazards.

Write for complete information.

The **Presscrete** Co.
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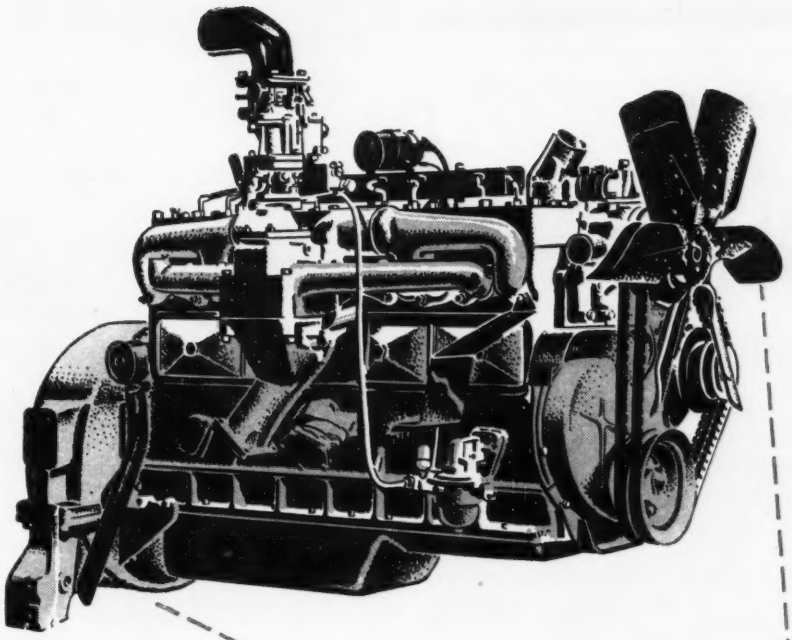
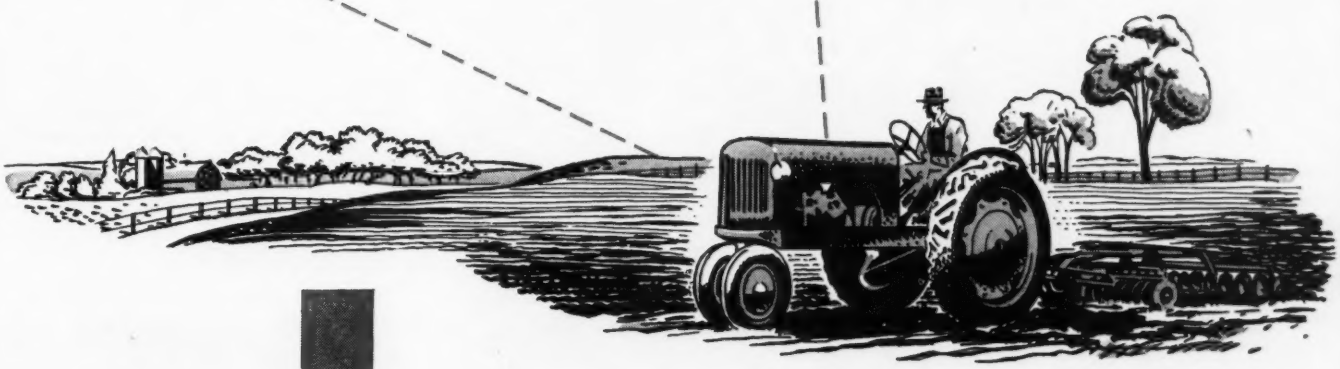
243 Graybar Bldg. - New York 17, N. Y.



FOR A BETTER DAY'S WORK



ON FARMS—IN FORESTS—IN OIL FIELDS—IN INDUSTRY AND ON THE HIGHWAYS!

• **The true test of powered equipment is its record on the job! Time, profit and achievement are factors controlled by the type of unfailing horsepower that provides the vital energy. That's why Chrysler Industrial Engines are found in so many leading makes of powered equipment—on so many tough jobs. They have a pedigree of performance made possible by Chrysler's famed engineering and production skill. They are really built *For A Better Day's Work!***

CHRYSLER
INDUSTRIAL ENGINES

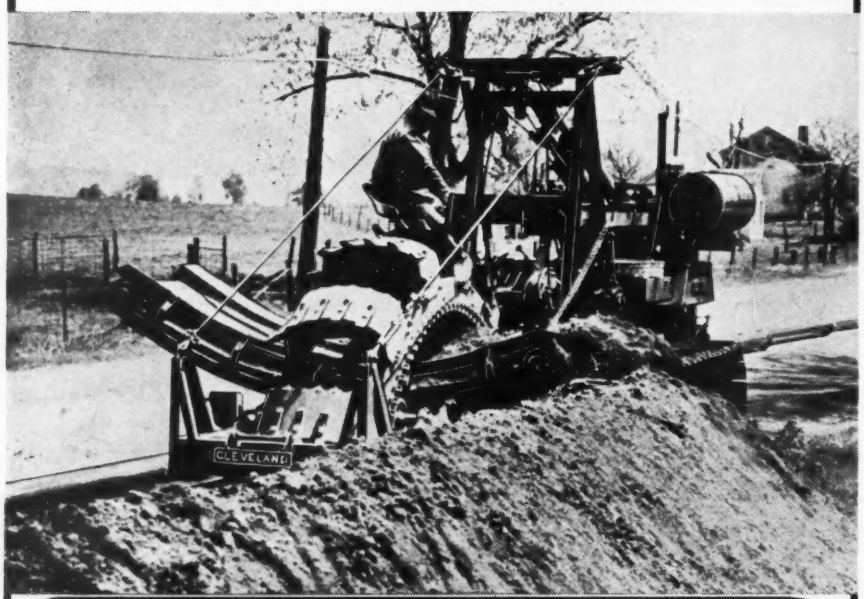
HORSEPOWER WITH A PEDIGREE

INDUSTRIAL ENGINE DIVISION, CHRYSLER CORP., 12200 E. JEFFERSON, DETROIT 31, MICH.

You can depend on

CLEVELANDS

TO DELIVER TOP TRENCHING PERFORMANCE



NO MATTER WHAT OR WHERE THE JOB:

Thousands of yards of trench dug in all sorts of soil and over all types of terrain, for Oil, Gas, Water and Sewer lines and for Drainage, Conduit, and Building Foundations, have proved to owners that they can absolutely depend on their CLEVELANDS to deliver MOST TRENCH in MOST PLACES at LEAST COST.

CLEVELANDS have earned and maintained this enviable reputation over a period of more than 25 years of service because of a combination of characteristics essential to efficient, economical operation.

Some of the more important of these CLEVELAND characteristics are:—Correct Full-Crawler Wheel-Type Design—Strength—Stamina—Speed—Ease of Handling—Ample Power—Low Fuel and Maintenance Costs and Quick, Easy Field Repairs. See your nearest CLEVELAND Distributor for complete details.

TRADE MARK

THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

(For more information on new products, use coupon, p. 116.)

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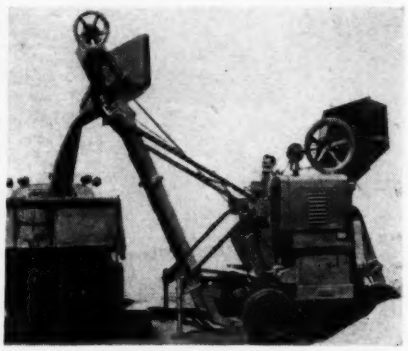

FOR DISCHARGING BITUMINOUS MIX—Special tower attachment is adaptable to either the 10 or 14-cu. ft. Kwik-Mix bituminous mixer. Loads bituminous material from ground level mixer into trucks or for stockpiling. Discharge height is from 7¾ to 8¾ ft. Operated by hoist powered by mixer motor. Loader is fully controlled by single lever on operator's platform.—**Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.**

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RIBBED-TOP CONVEYOR BELT—Designed to prevent back slip in carrying sand, gravel, wet mixed concrete and other "soupy" materials up steep inclines. Chevron-shaped ribs ¼ in. higher than belt surface serve as barriers preventing backwash of materials down belt on inclined operations. New belt is made in widths of 30 to 48 in.—**Goodyear Tire & Rubber Co., Akron, Ohio.**

293

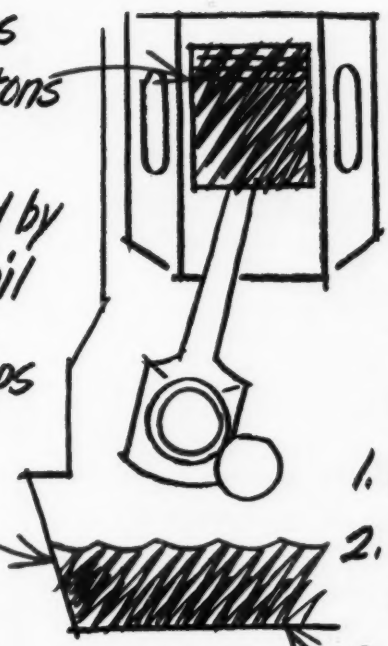
ROOF FASTENER—For use on asbestos corrugated roofing, "Top-Side" fasteners are claimed to eliminate expense of scaffolding and workmen beneath roof because installation is completed from roof surface. Also, cementing of bolt heads is not necessary because lead covering tabs waterproof each fastener. Only tools required for installation are a drill and speed wrench.—**Keasbey-Mattison Co., Ambler, Pa.**

LUBE MEMO

Crankcase Sludge causes Hot Lube Oil troubles

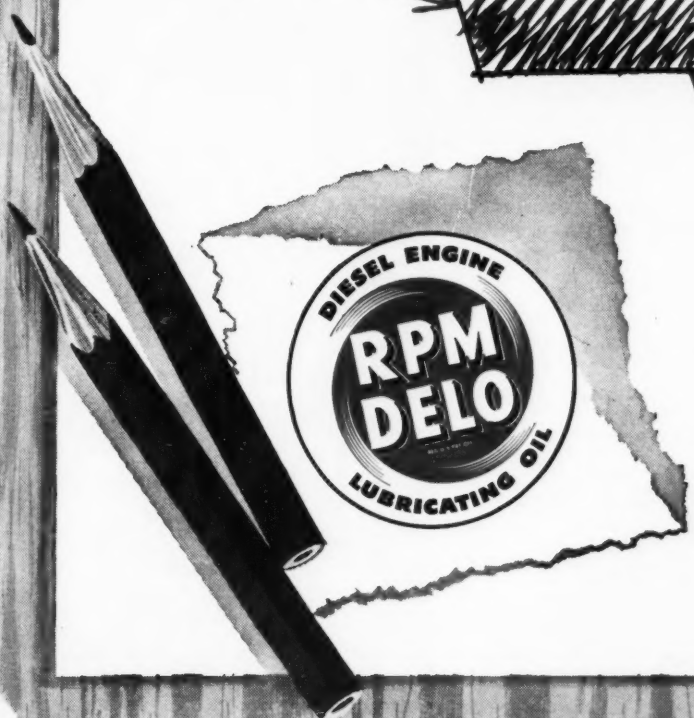
Hot oil oxidizes fast, gums pistons

Sludge formed by ordinary lube oil insulates crankcase, keeps oil hot



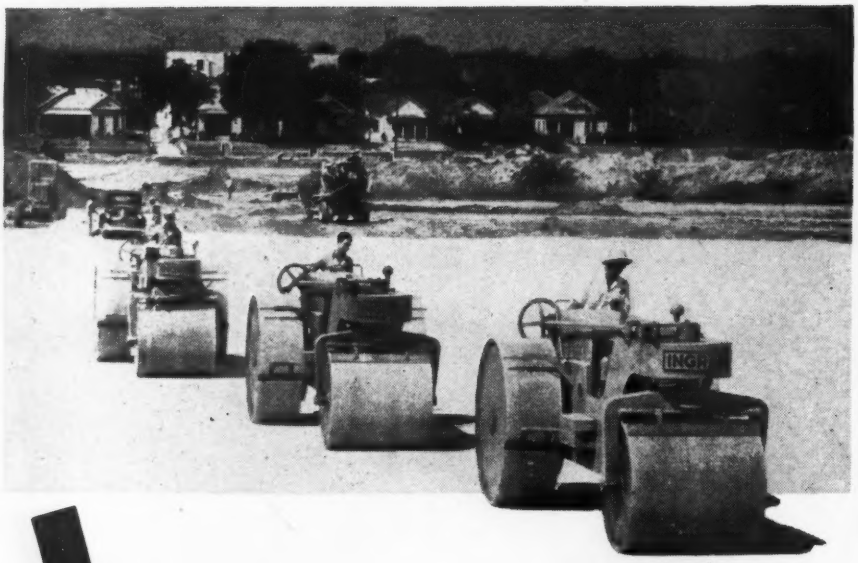
Foreman says try RPM DELO Diesel Engine Lubricating Oil – its compounds stop sludging 3 ways:

1. Oil oxidation slowed up
2. Gum and lacquer cleared out.
3. Contaminants held in suspension – flushed out when oil is changed.



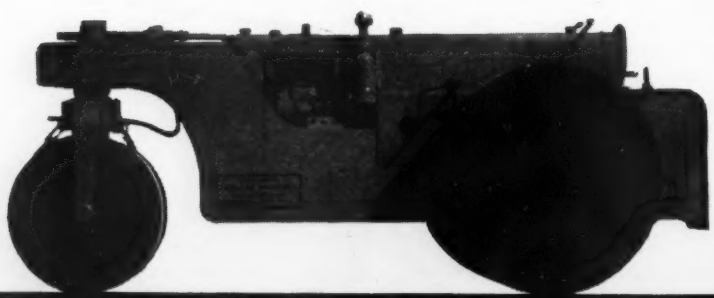
Tell foreman OK to order RPM DELO Oil

STANDARD OF CALIFORNIA • San Francisco, Calif.
THE CALIFORNIA COMPANY • Denver, Colo.
THE CALIFORNIA OIL COMPANY • New York
STANDARD OF TEXAS • El Paso, Texas

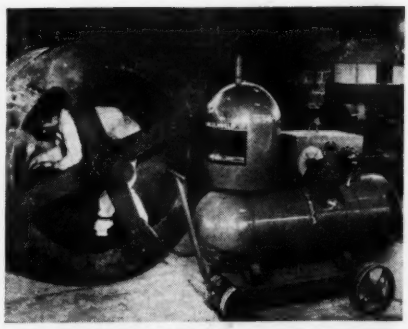


INGRAM ROLLERS

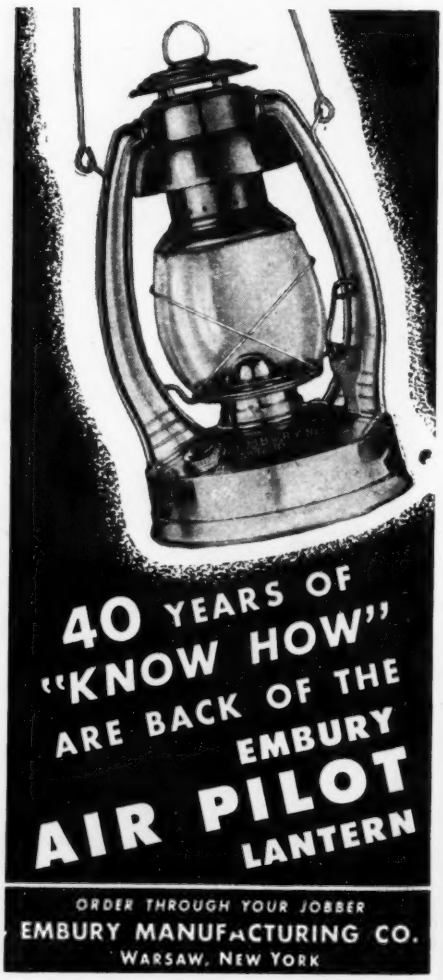
OPERATORS WORK FASTER AND BETTER with an Ingram Roller because the Ingram is easier to hold on straight-line rolling —easier to turn, too! But that's only one reason why contractors get greater profits from their Ingram Rollers. Five forward speeds—five reverse—electrically welded frame—full-length axles . . . these and many other features mean reduced operating cost. But let your Ingram distributor give you the complete story on every model—5 to 12 tons with variable or constant weight.



ACME IRON WORKS • SAN ANTONIO, TEX.



MANUAL WELDING EQUIPMENT —Designed for hidden arc deep flux process employing high current densities. Basic element of unit is a standard 600-amp. welder which can be used for straight manual welding as well as semi-automatic welding. Mounted on welder is compact unit containing wire reel, feed mechanism, drive motor and voltage controls. A special cable is attached to a cone-shaped welding gun, which holds 3½ lb. of flux. Constant arc voltage is maintained by automatic controls. Concentrated heat is sufficient to weld ½-in. plate in a plain butt joint, one pass on each side, without edge preparation.—**Lincoln Electric Co., Cleveland 1, Ohio.**



ORDER THROUGH YOUR JOBBER
EMBURY MANUFACTURING CO.
WARSAW, NEW YORK

THE JOB

THE WILKES-BARRE–SCRANTON AIRPORT

THE MASTER TANDEM **produced 150,000 tons of aggregate from rock quarried on the airport site for both base course and asphaltic-concrete surface at the rate of 1400 cu. yd. of highly abrasive stone per day.**

THE MODEL "E" **set-up near the crushing plant averaged 700 tons of black top mix per day for the 305,700 sq. yd. of flexible base and asphalt surface runways and taxiways.**

THE CONTRACTOR

C. J. LANGENFELDER & SON, INC.
Baltimore, Maryland

THANKS to the efficiency of Cedarapids equipment and the engineering skill of C. J. Langenfelder & Son, Inc., the people of the two cities, Wilkes-Barre and Scranton, now have a modern three runway airport of which they can well be proud.

Credit for finishing this project on schedule, despite the many difficulties encountered, was due in a large part to the use of Cedarapids Master Tandem crushing and screening plant and a Cedarapids Model "E" bituminous mixing plant.

From coast to coast on all types of construction projects, Cedarapids equipment is used by contractors who know and buy the best in aggregate producing and bituminous mixing equipment. They know that whether they need 50 tons or 250 tons of aggregate per hour or no matter how exacting the specifications for black top . . . there's a Cedarapids plant to meet their requirements.

When buying aggregate producing or bituminous mixing equipment, buy the best, buy Cedarapids.

THE IOWA LINE *of Material Handling Equipment Includes:*

ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • FEEDERS • TRAPS • STRAIGHT LINE ROCK AND GRAVEL PLANTS • PORTABLE POWER CONVEYORS • PORTABLE STONE PLANTS • PORTABLE GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE ASPHALT PLANTS • DRAG SCRAPER TANKS • WASHING PLANTS • TRACTOR-CRUSHER PLANTS • STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS

BETTER ROADS FOR A BETTER WORLD — 45th Annual Convention and Road Show — SOLDIER FIELD CHICAGO — JULY 16-24, 1948

Cedarapids — Built by IOWA — PRODUCT OF IOWA

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U.S.A.

To Make MORE MONEY on Concrete Work

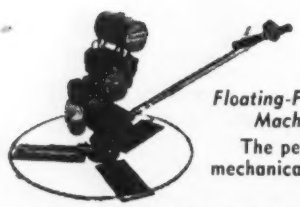
PUT A Whiteman Power Buggy ON THE JOB...

The Motorized Wheelbarrow of a Thousand Uses

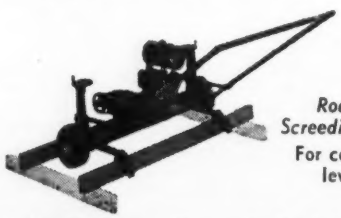
Hauls wet concrete, dirt, sand, bricks, tools . . . anything you can load in or on it. Ideal for pouring and upper story work. Goes through doorways. Weighs 750 lbs . . . width 28" (or 36" with dual wheels) Bucket ht. 34". Speed: 2 to 15 m.p.h forward or reverse Soon pays for itself. Also available with flat stake body.

- Capacity: 2,000 lbs. or 12 cu. ft.
- 6 H.P. does the work of 6 men
- Turns in own radius . . . reverses
- CONTROLLED dump for pouring

Plus these time-tested running mates:



Floating-Finishing Machine
The perfect mechanical trowel



Rodding (or Screeding) Machine
For compact and level slabs

Write for full details of cost-saving Whiteman Concrete Equipment

Whiteman CONCRETE EQUIPMENT
WHITEMAN MFG. CO.
3249 Casitas Ave., Los Angeles 26, California

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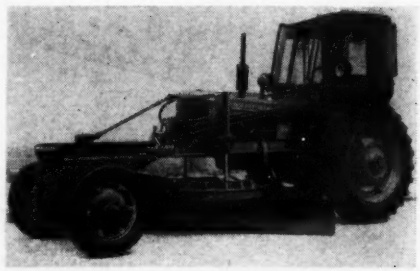

LIGHTWEIGHT ROAD GRADER— Model 30 power maintainer is hydraulically controlled from operator's seat and features attachment which includes leaning front wheels, power broom, snow plow, bulldozer blade and scarifier. Operates at five forward speeds ranging from 2.5 to 15.7 mph. and one reverse speed. Blade clearance is 12 in. and maximum blade pressure is approximately 5,000 lb. Equipment is built around a modified International power unit of 31.5 hp.—**Meili-Blumberg Corp., New Holstein, Wis.**

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CURING BLANKET SPLICER— Machine pays out "Scotch" Wetordry tape as fast as man can walk, joining sheets of asphalt-impregnated paper into a single protective covering for curing fresh concrete. Tape sticks on contact as machine, weighing 33 lb., presses it tightly in place. When concrete has cured, tape can be stripped off easily permitting full width of protective paper to be reused repeatedly. Protective paper slows evaporation of water in concrete.—**Minnesota Mining & Mfg. Co., 900 Fauquier Ave., St. Paul 6, Minn.**

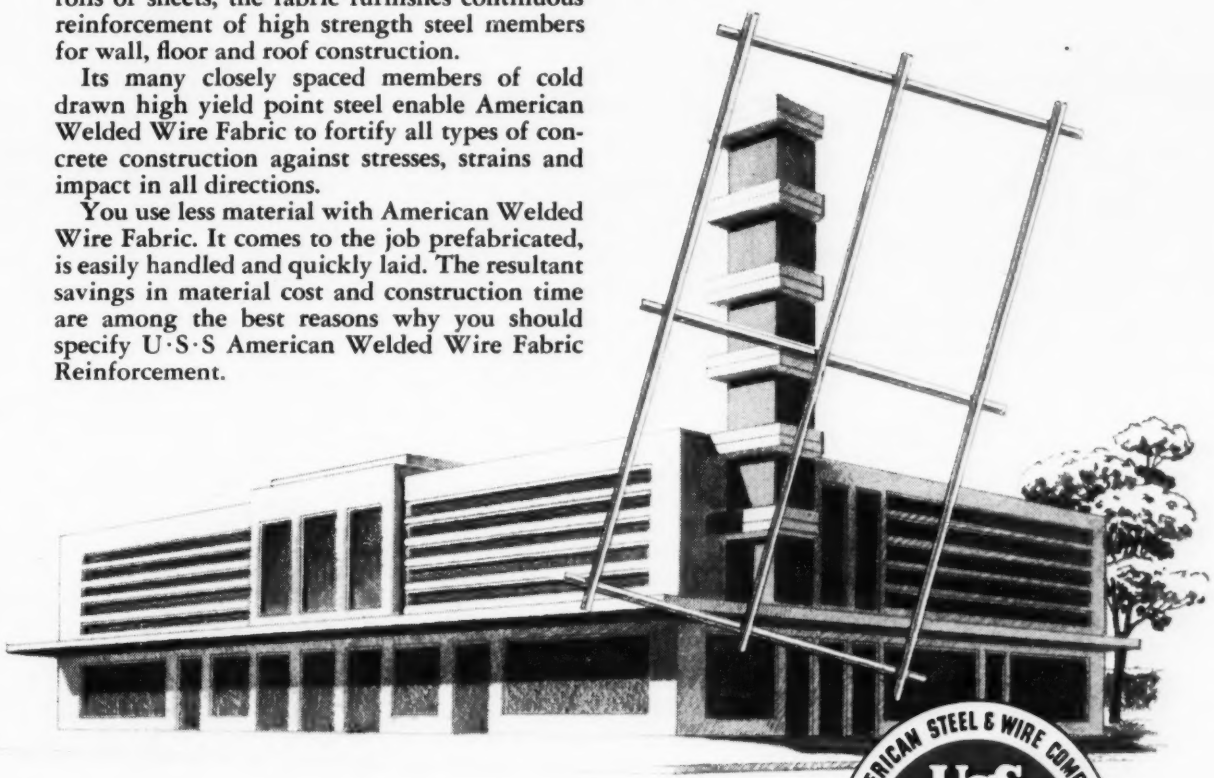
When you specify reinforced concrete . . . . . .

specify AMERICAN WELDED WIRE FABRIC

● In many modern buildings, architects and construction engineers have made extensive use of American Welded Wire Fabric. Supplied in rolls or sheets, the fabric furnishes continuous reinforcement of high strength steel members for wall, floor and roof construction.

Its many closely spaced members of cold drawn high yield point steel enable American Welded Wire Fabric to fortify all types of concrete construction against stresses, strains and impact in all directions.

You use less material with American Welded Wire Fabric. It comes to the job prefabricated, is easily handled and quickly laid. The resultant savings in material cost and construction time are among the best reasons why you should specify U·S·S American Welded Wire Fabric Reinforcement.

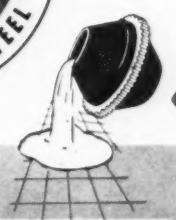


AMERICAN STEEL & WIRE COMPANY
USS
AMERICAN WELDED WIRE FABRIC
UNITED STATES STEEL

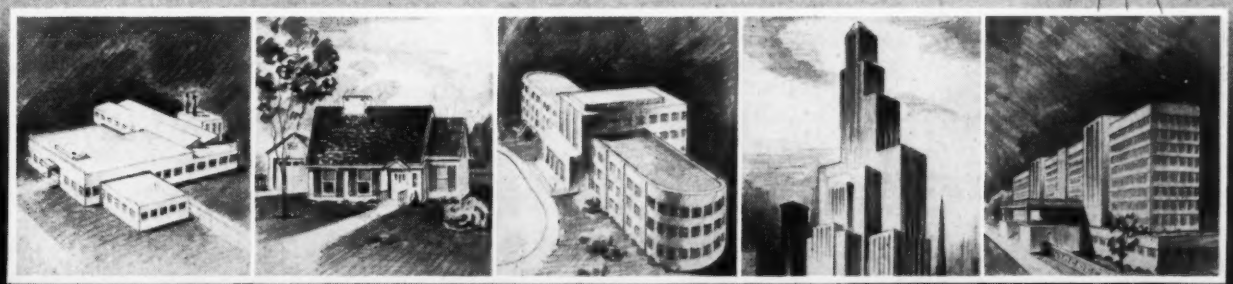
American Steel & Wire Company
Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, Pacific Coast Distributors
Tennessee Coal, Iron & Railroad Company, Birmingham, Southern Distributors
United States Steel Export Company, New York

UNITED STATES STEEL



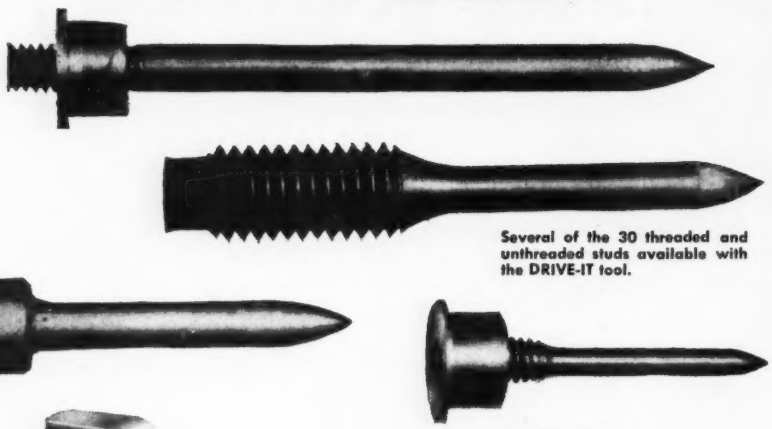
Every type of concrete construction needs American Welded Wire Fabric reinforcement.



FACTORIES SMALL HOMES SCHOOLS SKYSCRAPERS HOSPITALS

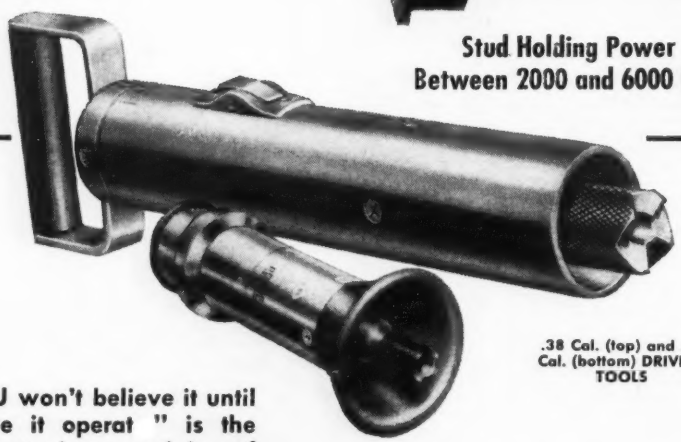
POWDER OPERATED CONSTRUCTION TOOL

Drives Threaded Studs 3 Inches into Concrete INSTANTLY!



Several of the 30 threaded and unthreaded studs available with the DRIVE-IT tool.

Stud Holding Power Between 2000 and 6000 Lbs.



.38 Cal. (top) and .22 Cal. (bottom) DRIVE-IT TOOLS

"YOU won't believe it until you see it operat " is the almost unanimous opinion of contractors who have adopted the amazing new Powder-Power tool, DRIVE-IT, to drive steel studs through wood or metal into concrete.

HOW IT WORKS

The DRIVE-IT tool employs a small powder charge encased in a standard cartridge to drive studs 3" into concrete and through 5/8" steel. The desired stud and cartridge are placed in the tool. The muzzle of the tool is placed on the spot where the stud is to be driven and the tool is forced forward. This detonates the explosive charge, driving the stud into concrete or steel with such force the stud actually fuses with aggragate or metal. Up to 6000 lbs. force is required to pull DRIVE-IT studs from ordinary concrete.

UNLIMITED APPLICATION

The DRIVE-IT tool offers unlimited application for all contractors:

ELECTRICAL: For anchoring conduits, switch boxes, cables, etc., to concrete and masonry.

PLUMBING AND HEATING: For hanging pipe, heating ducts, from concrete ceilings or walls.

PLASTERING: For suspending ceilings or "nailing" wood firring to concrete.

GENERAL: "Nailing" steel window and door frames, wood sleepers, etc., to concrete.

ABSOLUTELY SAFE

DRIVE-IT, the **original** powder-operated tool, functions without recoil shock. It is **absolutely safe** and cannot be discharged even if dropped several floors.

Write for Demonstration

The DRIVE-IT distributor in your region will be glad to show you the .38 cal. and .22 cal. models in operation. Write for complete DRIVE-IT information, name and address of your nearest distributor.

POWDER POWER
TOOL CORPORATION
FOOT OF S.W. WOODS STREET (DEPT. A)
PORTLAND 1, OREGON

(For more information on new products, use coupon, p. 116.)

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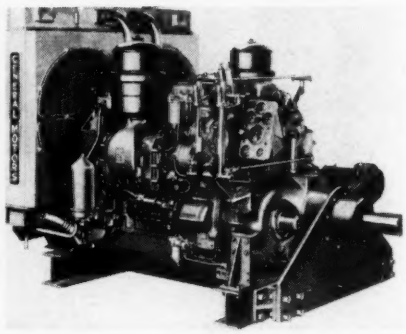
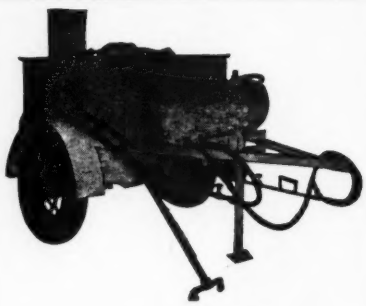


DIESEL ENGINE—New multiple engine unit (Model 8-103) consists of two General Motors, Series 71, 4-cylinder diesels mounted side by side on a common base and geared to a single output shaft. Unit develops 170 bhp. to fill gap between single 6-cylinder and twin-6 models in the GM Series 71 line. Purchasers have a selection of four different power takeoff arrangements including pulley or chain drive and stub shaft, SAE "O" size housing and drive flange. Units may be equipped with electric, air or gasoline starting devices.—**Detroit Diesel Engine Division, General Motors Corp., 13400 West Outer Drive, Detroit 28, Mich.**



HEATING KETTLES
FOR ASPHALT AND TAR
Fire Proof — Oil Burning
Hand and Motor Driven Spray

Other Products

CONCRETE VIBRATORS
Gasoline Engine and Electric Motor Driven Models

FRONT END SHOVELS
For Industrial Tractors

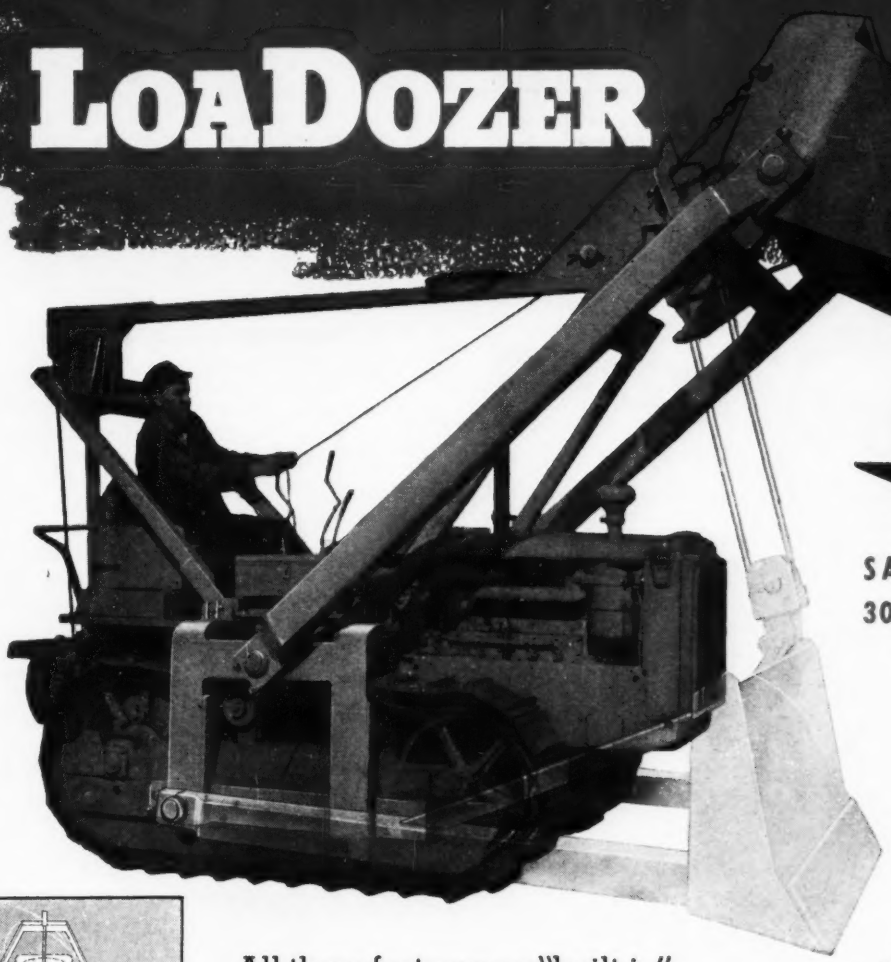
AGGREGATE DRYERS
for Stone and Sand

ASPHALT PLANTS
Portable — Stationary

Write for Circulars

White Mfg. Co.
ELKHART INDIANA

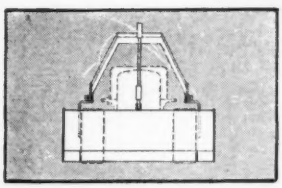
NOW-THE SOUTHWEST LOADOZER

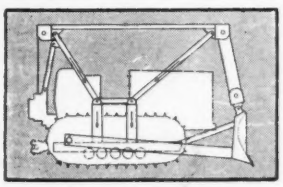


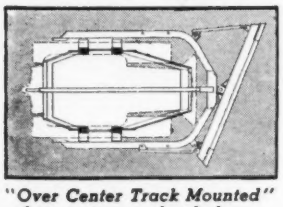
All this

SAVES ONE TRACTOR
30 MINUTE CHANGE-OVER
EASY OPERATION

Balance
Economy
Ruggedness
Speed
Versatility







"Over Center Track Mounted" design gives perfect balance

ANOTHER EXAMPLE OF *Southwest's* LEADERSHIP

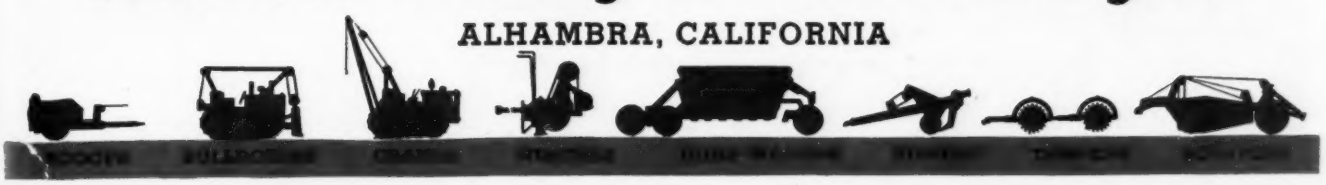
All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA



ONE TIME USE
CONCRETE FORMS

PIERS AND COLUMNS

Laminated fibre tubing

SAVE

TIME

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6 STANDARD SIZES

INSIDE DIAMETER					
8"	9"	10"	11¼"	12"	13½"
		SQUARE INCHES			
50.26	64	78.54	100	113.1	144

Cut to lengths on the job
(pier heights)
IMMEDIATE DELIVERY

Many new and ingenious uses for SONOTUBES are coming to light daily... Have proven practical in forming culverts and outfall sewers. Write for complete description and delivered prices.

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HARTSVILLE, S. C. MYSTIC, CONN.
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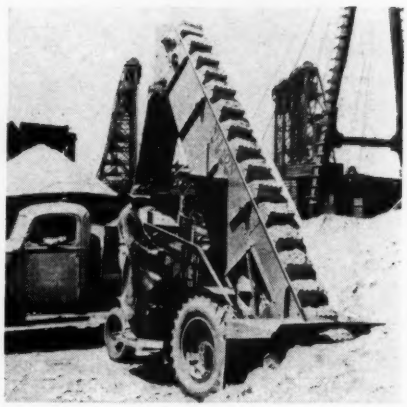

BUCKET LOADER—Heavy enough for pit and road work, yet quickly maneuverable in yards. Moves under own power and is equipped with a two-strand elevator and four-speed transmission. Separate Twin Disc clutches control traction and elevator, the latter having automatic overload release to prevent damage to machine. Feeder spirals pick before they shovel loosening the material and heaping it into buckets at speeds up to 2 cu. yd. per min. Power unit is 27-hp. LeRoi gasoline engine. K-5 machine handles earth, gravel or broken stone up to 2½-in. size.—**N. P. Nelson Iron Works, Inc., Clifton, N. J.**

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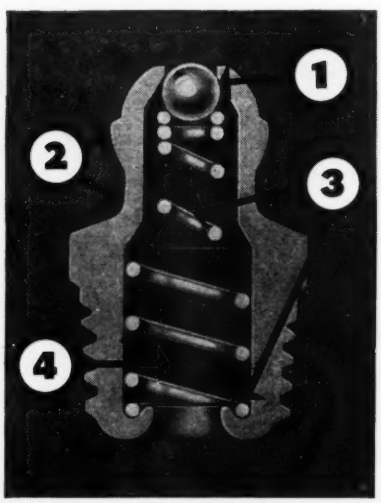
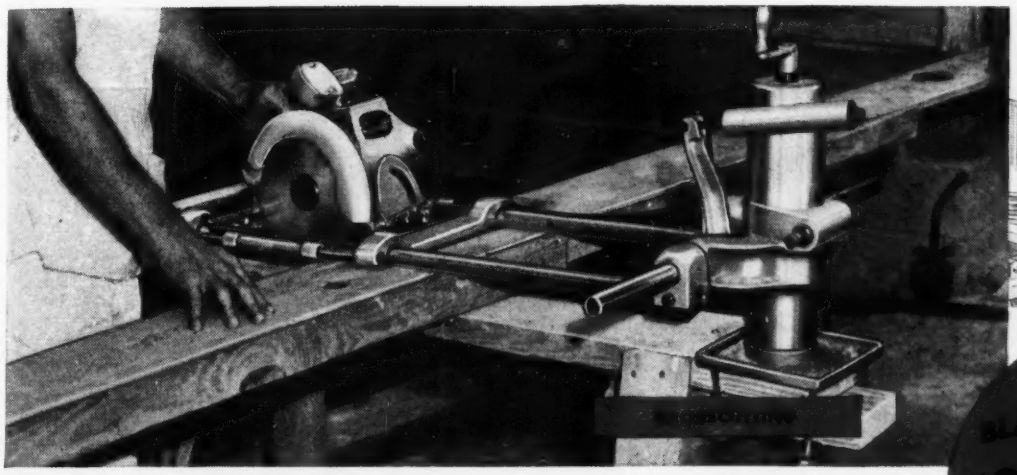


GREASE FITTINGS — Kleenseal bullneck-type grease fittings can be securely contacted to all commercial hydraulic couplers. Flush ball check keeps dirt out and grease in. Enlarged neck size and protecting locking tab protect against damage and wear. Spring will not compress to restrict flow of heaviest lubricants. Large internal diameter permits greater flow of lubricant and requires less pressure to clear fitting.—**Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis 20, Mo.**



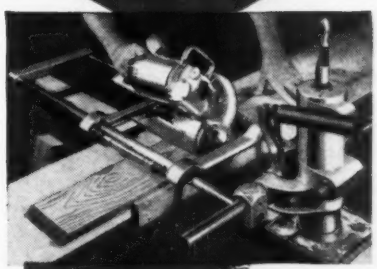
BLACK & DECKER "Quick-Saw" ARM $148.00 (POT INCLUDED SAW)

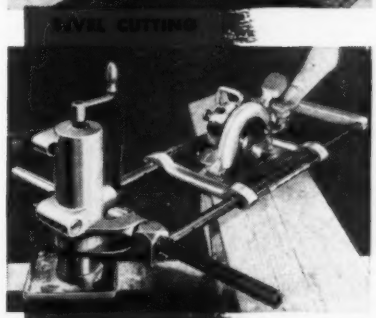
NEW BLACK & DECKER "Quick-Saw"* ARM

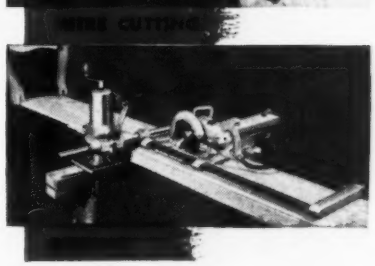
Multiplies the Usefulness of *Powerful, Versatile* Electric Saws!

Now—add Radial Saw features to your Portable Electric Saws—with a Black & Decker Quick-Saw Arm! The new Quick-Saw Arm gives you *dual* versatility: (1) A *positive* set-up for "pre-fab" cutting; (2) *Flexibility* of adjustment to make many kinds of cuts . . . in "on the job" sawing or production shop use. It helps you make more accurate cuts, increase speed, reduce fatigue. It does fast plunge cutting on moulding, fence pickets, etc.

All three Black & Decker Electric Quick-Saws (and most other portable electric saws) fit into the adjustable carriage of the Quick-Saw Arm in a jiffy. Entire unit clamps to saw horse or mounts on table. All adjustments quickly regulated on the column. And, however you use them, Black & Decker Quick-Saws beat hand sawing 10 to 1—in wood, metal, stone or composition sawing—with maximum safety. Ask your nearby Black & Decker Distributor for complete details. Write today for free catalog to: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Maryland.







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PORTABLE ELECTRIC TOOLS

9" QUICK-SAW	7" QUICK-SAW	9" QUICK-SAW
Cuts up to 3-5/8" depth	Cuts up to 2-3/8" depth	Cuts up to 3-1/8" depth
$135.00	$115.00	$150.00

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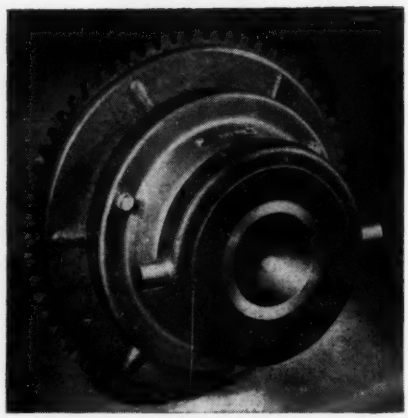

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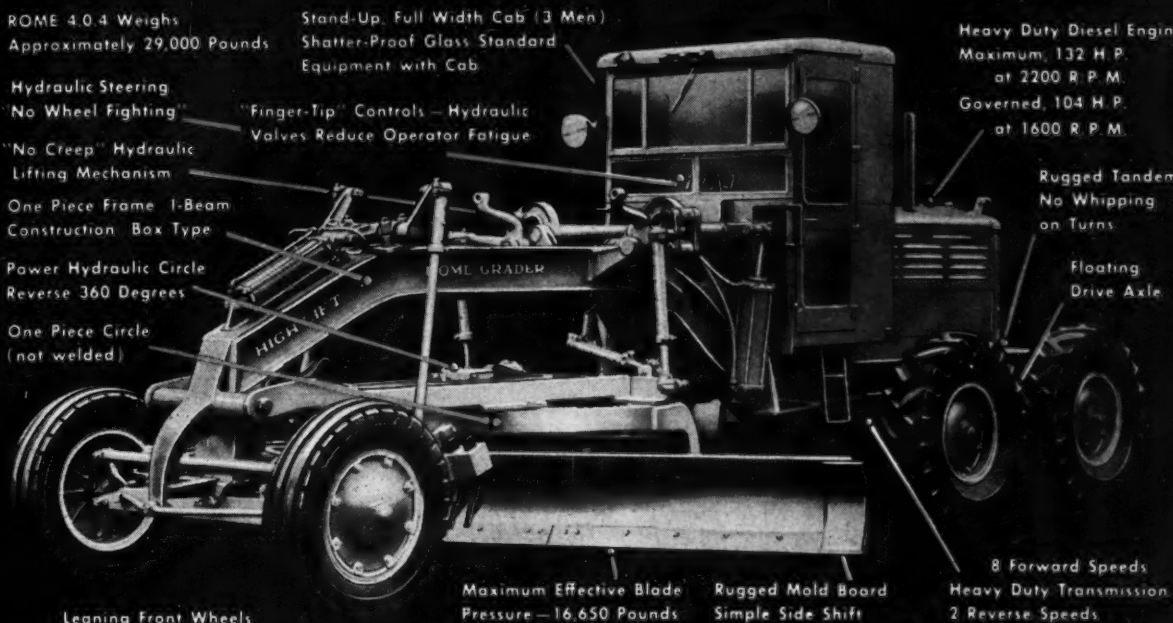
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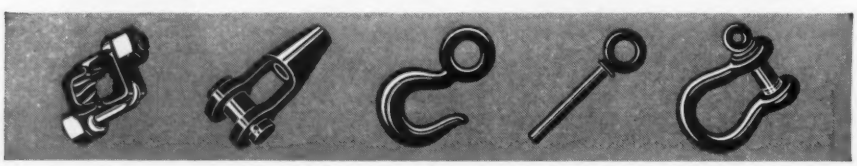

New PUBLICATIONS From MANUFACTURERS

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616

RUBBER PRODUCTS FOR INDUSTRY—Condensed catalog gives special emphasis to transmission and conveyor belting, V-belts, hose, engineered molded products, rubber roll coverings, tank linings, and abrasive wheels.—**Raybestos-Manhattan, Inc., Passaic, N. J.**

617

FRAMING ANCHORS — (2-p. bulletin) describes and illustrates new type of timber connector known as Trip-Lo-Grip framing anchors for timber construction to increase rigidity around window and door openings and to provide added strength in floor and corner post framing. Made of 18-gage zinc-coated, corrosion-resistant sheet steel, the anchors are joined to the wood with non-splitting, full-bodied nails. Booklet gives construction details covering use of anchors in wood frame house plans. Also issued is 6-p. leaflet describing Trip-L-Grip anchors as joist hangers to eliminate cost of ledger strips and notching and shimming joists.—**Timber Engineering Co., 1319 18th St. N.W., Washington 6, D. C.**

618

WELDING PRODUCTS — (28-p. pamphlet) Tells how to keep equipment of all types operating and producing through Amsco conservation welding. Explains low cost method of keeping hard-to-get parts out of the scrap pile by repairing, rebuilding, reclaiming and hard surfacing. Complete characteristics and specifications for each rod or electrode. —**American Manganese Steel Division, American Brake Shoe Co., Chicago Heights, Ill.**

619

CONE CRUSHERS—(2-p. folder) Gives specification data and operating information on Symons intermediate cone crushers for rock, gravel and ore reduction. One page is devoted to the recently introduced "packaged" unit crusher."—**Nordberg Mfg. Co., Milwaukee 7, Wis.**

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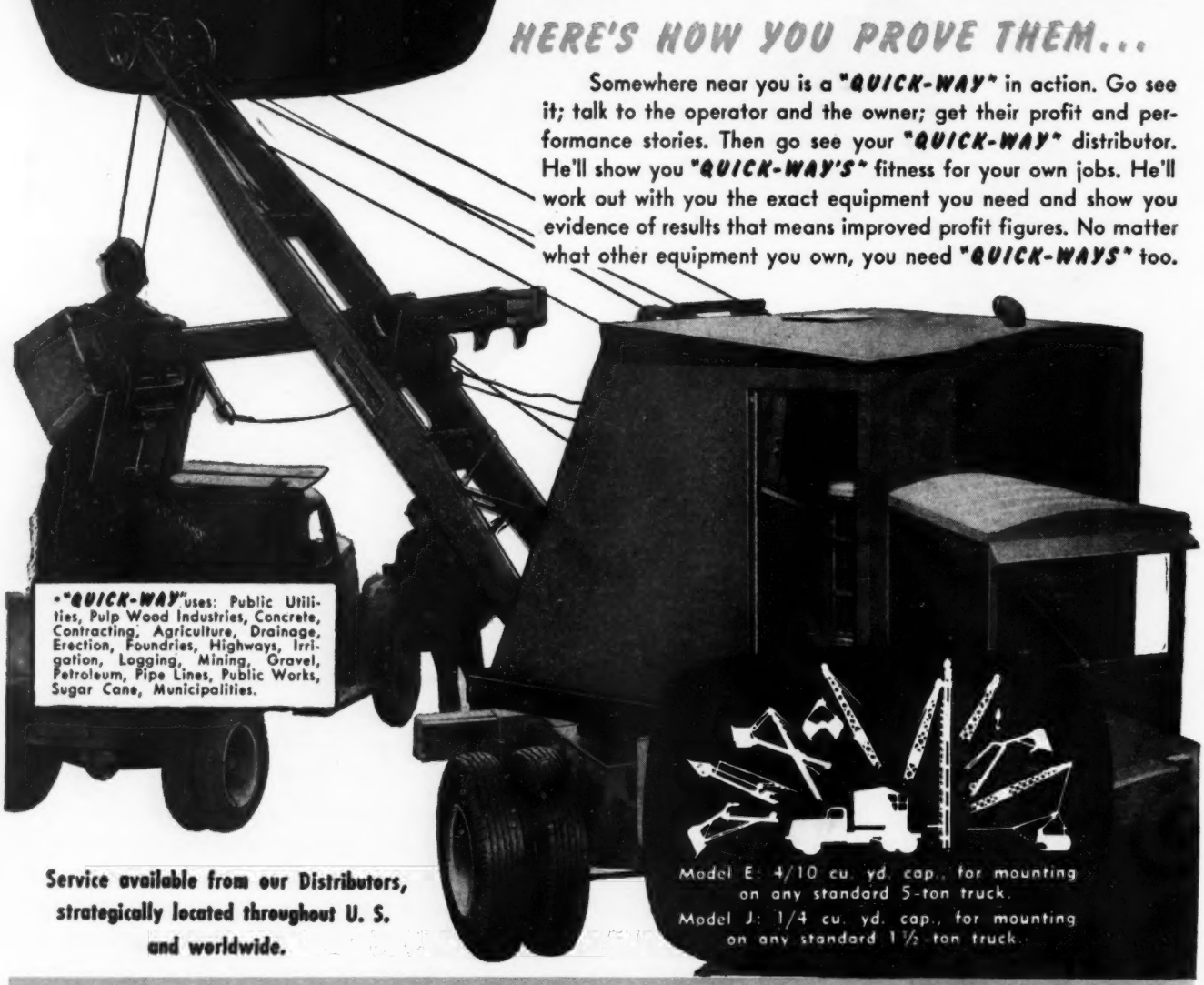

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620

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621

BUILT-UP ROOFS—(28-p. catalog) Specifications for built-up roofing. Drawings and materials specifications for both hot and cold process built-up roofs. Index shows how to select correct type of bonded built-up roofing. Drawings and specifications give detailed information on surface preparation and application. **—Philip Carey Mfg. Co., Dept. 803, Cincinnati 15, Ohio.**

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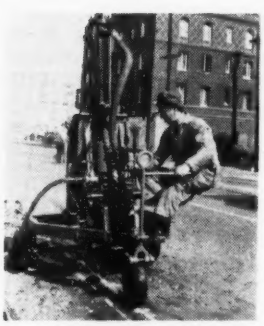

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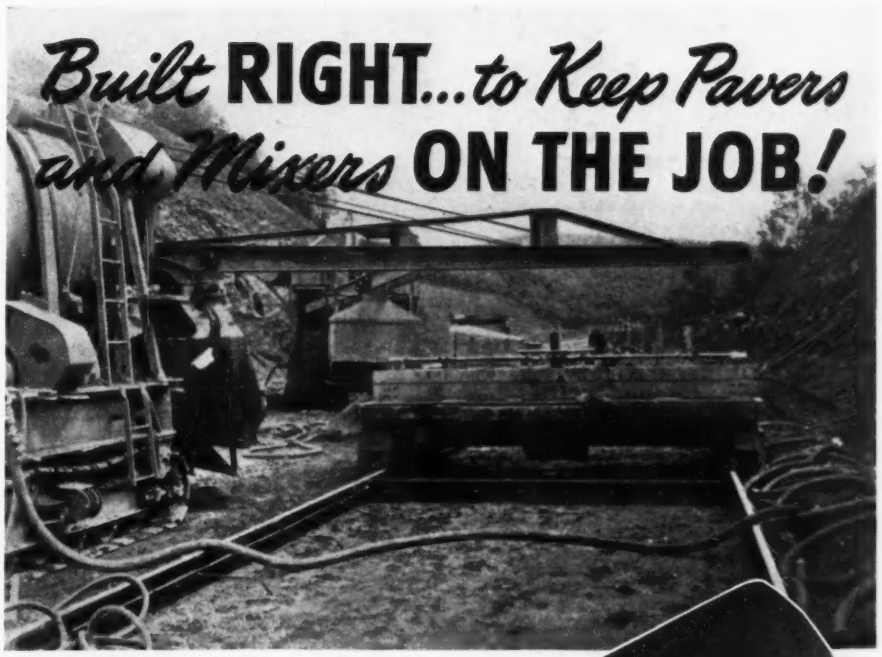

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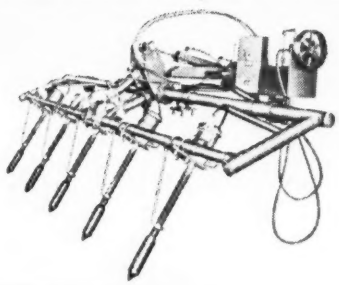

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623

SAFETY DIRECTORY — (494 p., price $5). Using safety as a theme, this large book lists products available, tells briefly how to use them and names companies manufacturing items ranging from first-aid bandages to industrial locomotives. Many products listed are primarily for industrial use, but the fact that they are only infrequently needed on construction makes a central source of information even more valuable. "Safety" is given a liberal interpretation to include such items as waste cans, gloves, paints, roofing, conveyors, cranes, as well as the goggles and safety clothing one would normally expect to find. It is a book well worth its price on any construction job. — **Alfred M. Best Co., Inc., 75 Fulton St., New York 7, N. Y.**

624

ADHESIVES IN INDUSTRY—(28-p. brochure) Deals with bonding operations such as plywood-to-metal and vinyl-sheeting-to-wood, sealing operations, protective and anti-corrosion coatings for metal.—**Minnesota Mining & Mfg. Co., St. Paul, Minn.**

625

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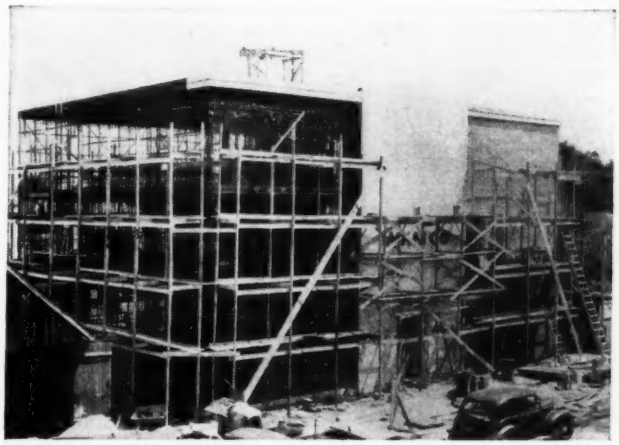

Fig. 1. The new WKM Valve Co. three-story office building. The Matthews Construction Co. and the Brown Construction Co., contractors.

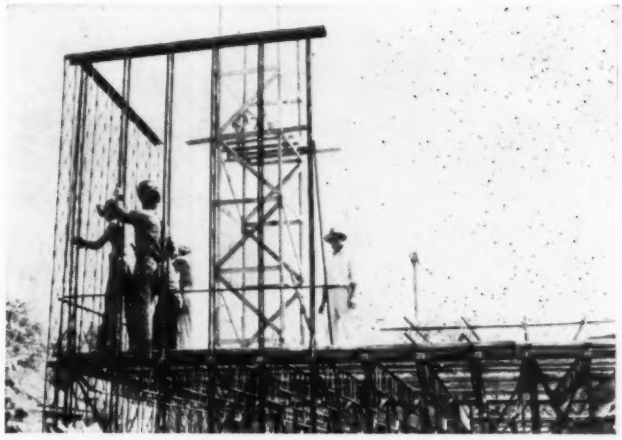

Fig. 3. Second floor panel section being held in place for tack welding.

by Richard P. Matthews

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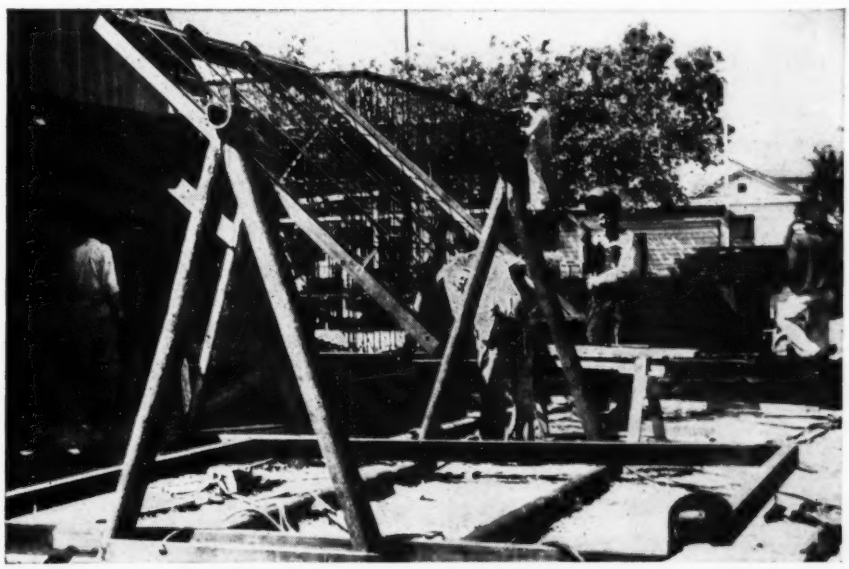

Fig. 2. On-the-ground prefabrication of ten-foot panel sections.

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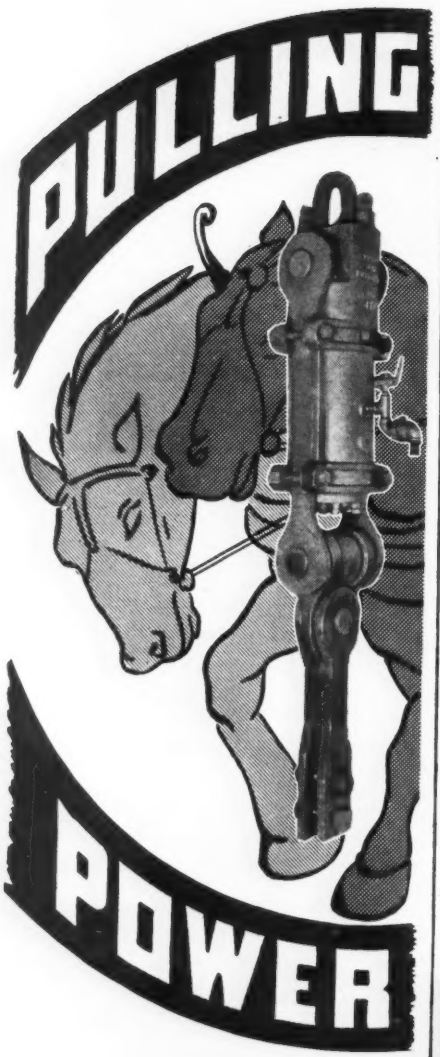

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626

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627

WELDED DESIGN GUIDE — (6-p. pamphlet) Explains use of proper welding symbols to simplify drafting problems. Also, tables of properties of base metals, weld metals, safe loads for fillet welds, and length of fillet weld to replace rivets.—**Lincoln Electric Co., Cleveland 1, Ohio.**

628

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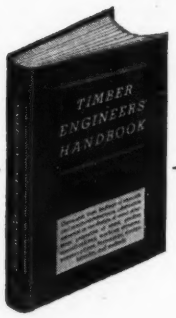

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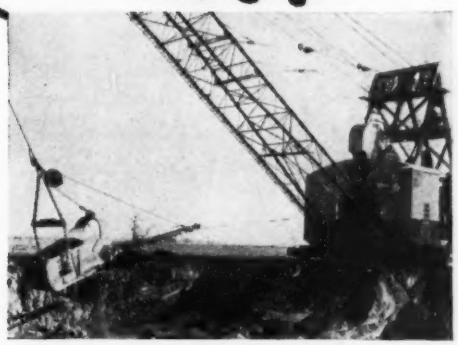

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629

UNIVERSAL JOINTS—12-p. catalog describes large capacity roller bearing universal joints which are strong and safe because they drive through integral keys instead of bolts. They can be removed from cars or trucks on the road in 20 min. with a wrench and hammer without disturbing original balance. Sizes range from 200 to 50,000-ft. lb. torque.—**Mechanics Universal Joint Division, Borg-Warner, 2022 Harrison Ave., Rockford, Ill.**

630

ELECTRONIC COMMUNICATION—(4-p. folder) Executone provides intercommunication and amplified voice paging for industrial, commercial, institutional and residential buildings. Diagrams show typical installation.—**Executone, Inc., 415 Lexington Ave., New York 17, N. Y.**

631

MARINE CLUTCHES AND HYDRAULIC DRIVES—(24-p. booklet) Report of survey of Twin Disc marine equipment in West Coast boats. Details of new marine gear and hydraulic torque converter.—**Twin Disc Clutch Co., Racine, Wis.**

632

SMOKE ABATEMENT—16-p. booklet on modern smoke abatement practice shows how overfire jets provide turbulence and oxygen to burn volatile matter from coal before smoke can be formed. Booklet tells what causes smoke and how it can be prevented.—**Bituminous Coal Research, Inc., 912 Oliver Bldg., Pittsburgh 22, Pa.**

633

FLEXIBLE COUPLING—(24-p. booklet) Discusses "relief from bearing wear grief" and problems of power transmission loss and prematurely worn bearings. Explains functions of flexible couplings and three types of shaft misalignment.—**American Flexible Coupling Co., Erie, Pa.**

634

WELL DRILLER—Circular explains fine points of lightweight yet heavy-duty automatic well digger. Drill weighing 125 lb. is raised and dropped by a cam approximately 36 times a minute. Actual use proves it will drill through any strata drilled by much larger machines.—**Consolidated Industries, 9 South Colony Street, Wallingford, Conn.**

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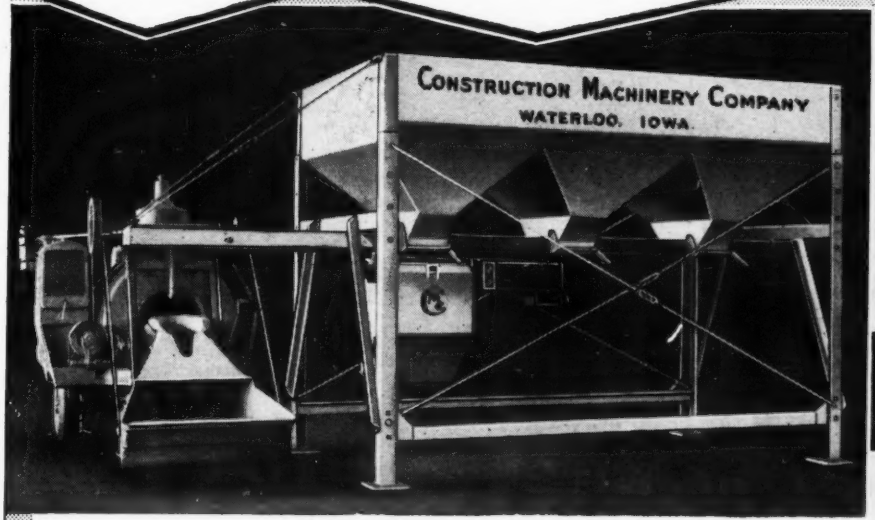

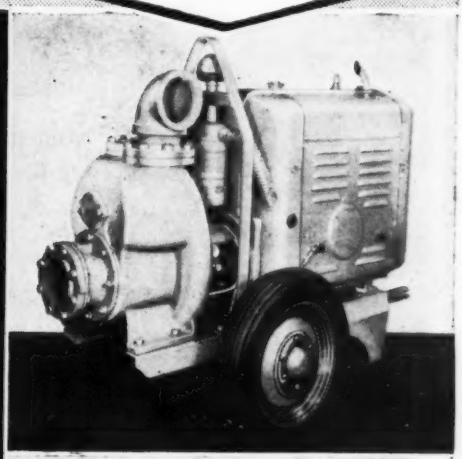

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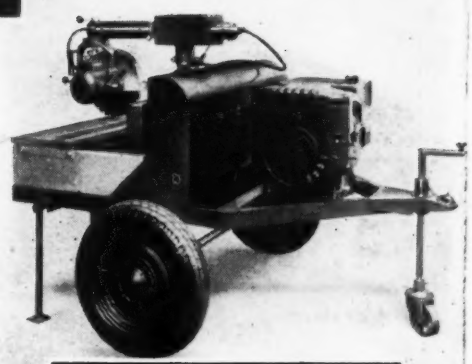

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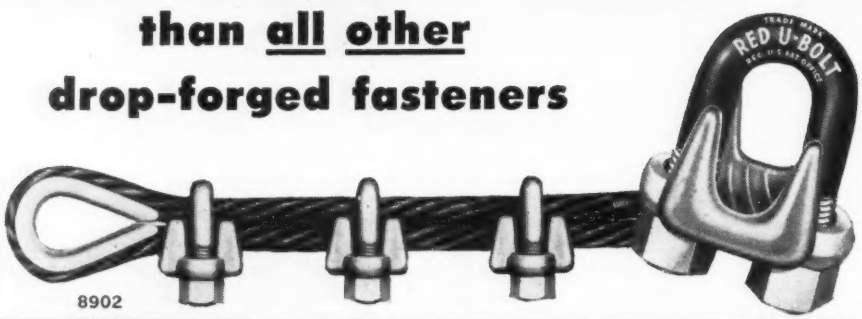

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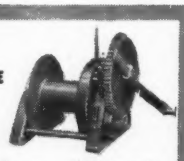

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DISTRIBUTION TRANSFORMERS—(12-p. bulletin) Units 100 kva. and below 15,000 v. and below, are reduced in size and weight and incorporate latest developments in metal fabrication and welding.—**Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.**

636

WIRE ROPE CONNECTORS—(32-p. booklet) Fitting of three simple units — sleeve, plug and covering socket—locks cable to make a strong, flexible, durable connection. Cutaway views show how cable and strands are positively anchored. Three main types of connection are: open end or clevis type; eye end type; and stud end type.—**Electroline Co., 4121 So. LaSalle St., Chicago 9, Ill.**

637

FOR CONCRETE CONSTRUCTION—Bulletin describes uniform system of wall form construction including inside and outside corners and filler panels prefabricated or job built.—**Universal Form Clamp Co., 1238-56 N. Kostner Ave., Chicago 51, Ill.**

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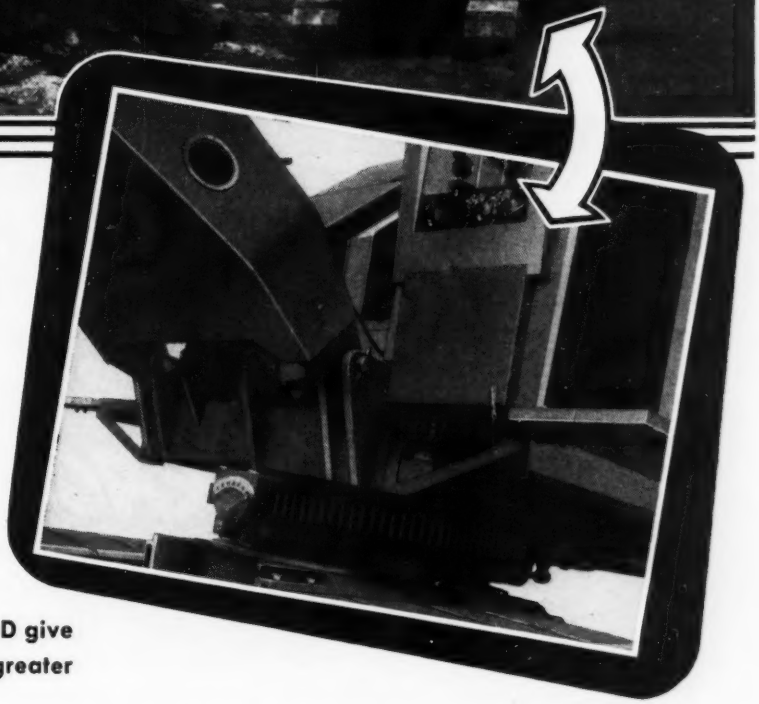

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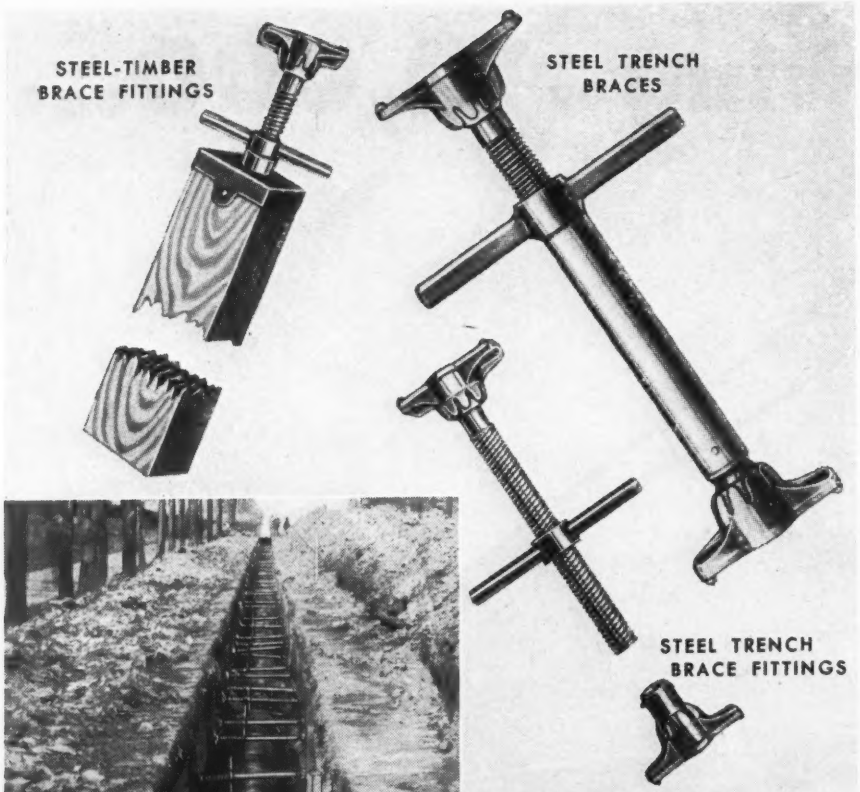

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638

RUBBER BASE ENAMELS FOR CONCRETE FLOORS — (Leaflet) One-hour drying enamel is intended to reduce accidents caused by skidding on floors. Cost is claimed to be one cent per sq. ft. Is resistant to washing chemicals.—**Wilbur & Williams Paint Corp., 43 Leon St., Boston 15, Mass.**

639

PAINT AIR GUN—(1-p. leaflet) Equipped with four sizes of interchangeable air and fluid tips. Uses air pressure from 10 to 60 psi. Gives advice on operation and on care and cleaning. Similar leaflets also available on the company's abrasive gun for production stencil purposes and the automatic air brush.—**Paasche Air Brush Co., 1909 Diversey Parkway, Chicago 14, Ill.**

640

EMERY AGGREGATE FOR CONCRETE FLOORS—(12-p. pamphlet) Lists advantages claimed for Emeri-Crete flooring including hard surface, resistance to wear and smoothness and freedom from ruts.—**Walter Maguire Co., Inc., 330 W. 42d St., New York 18, N. Y.**

641

MACADAM PAVEMENTS—Informational bulletin has been issued by a technical organization for research and engineering study to improve and develop macadam pavements. Describes approved construction methods, and gives typical sections of pavements built and under construction. — **Macadam Pavements, Inc., 1018-19 Huntington Bank Bldg., Columbus 15, Ohio**

642

STEEL FORMS—Loose leaf sheets in a pocket-size folder provide data on comparative construction costs with wood and steel foundation forms, descriptions of various types of forms. Provision is made for adding newer data as received.—**Irvington Form & Tank Corp., 43 Cedar Street, New York 5, N. Y.**

643

METAL JOISTS AND WINDOWS—Bulletins give particulars of Ceco steel joists and roof deck and metal windows and doors. Illustrations, charts and installation details make this literature useful to builders. Perhaps the most valuable feature is the very complete set of safe load tables.—**Ceco Steel Products Corp., 5701 W. 26th Street, Chicago 50, Ill.**

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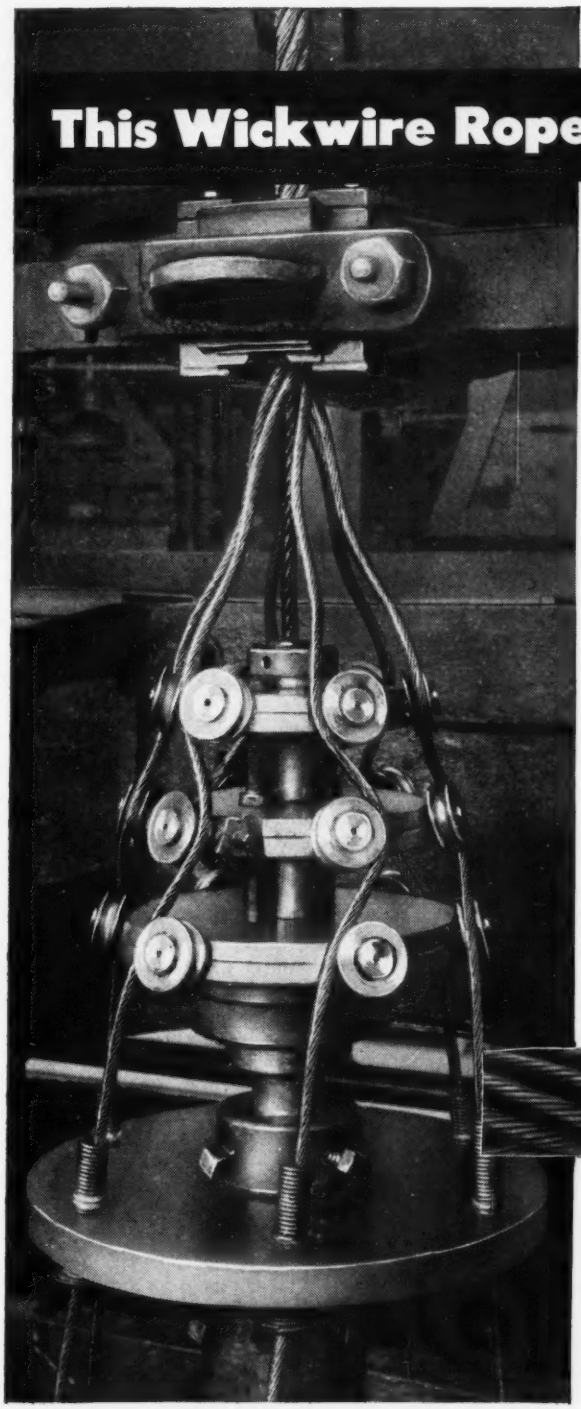

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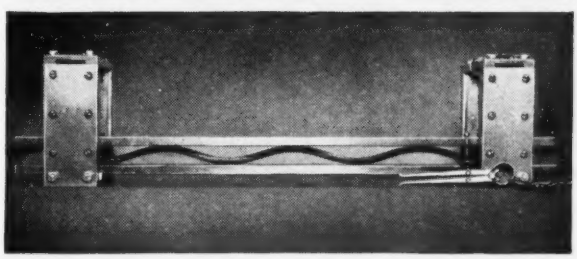

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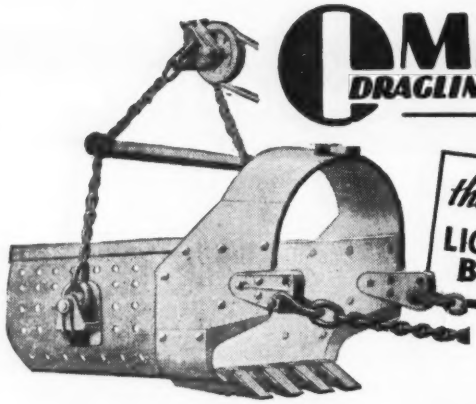

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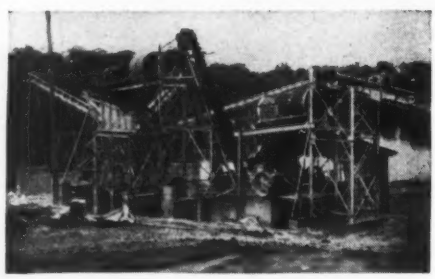

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644

POWDER BAGS—Booklet points out how shot placing is speeded up by removing explosives from their boxes away from the operation and carrying them in suitable bags. This method eliminates certain amount of danger in such operations.—**American Brattice Cloth Corp., Warsaw, Ind.**

645

METAL-CUTTING TOOL—An 8-p. bulletin describes surface and underwater metal cutting tool that uses an electric arc vapor and pierces, cuts or chamfers cast iron, stainless steel, aluminum and other metals difficult to cut by ordinary methods.—**Eutectic Welding Alloys Corp., 40 Worth Street, New York 13, N. Y.**

646

SAFETY BELTS AND NETS—Folder tells of safety belts made of linen webbing to which is stitched a 3x44-in.-long body pad of 4-ply cotton webbing, reinforced with rawhide. Special belt for bridge and structural steel works is made of harness leather 2 in. wide. Nets are made by hand of best grade selected rope to any size required.—**Atlas Safety Equipment Co., Inc., 26 Warren St., New York 7, N. Y.**

647

SIGN MAKERS—Booklet is complete catalog of lettering guides which save time and money in lettering and sign-making. Guides and pens come in a bakelite cabinet.—**The Wood-Regan Instrument Co. Inc., Nutley, N. J.**

648

TRUCK LOADER — (4-p. folder) Bucket on swinging arm loads truck from rear end. Power is furnished by traction of truck's rear wheels on loader pads. No power takeoff required.—**Shoveller Corp., 36 Warren Ave., Portland 5, Maine.**

649

ANTI-RUST PAINT—(6-p. leaflet) Presents application directions for Rustrem and emphasizes that this paint can be applied directly over rusty surfaces without wire-brushing or scraping. Recommended for automotive and construction equipment use on any metal surface subject to rust. Paint is available in black or aluminum.—**Speco, Inc., 3142 Superior Ave., Cleveland, Ohio.**

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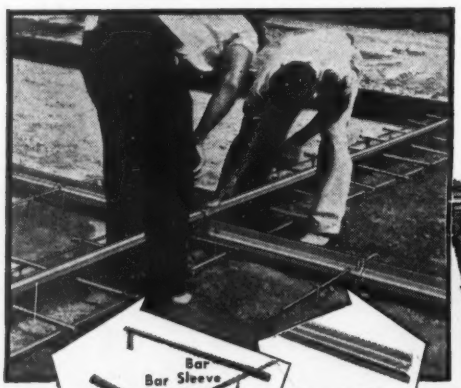

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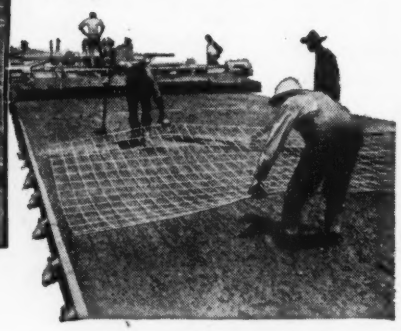

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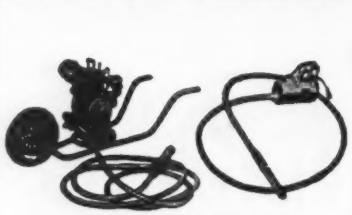

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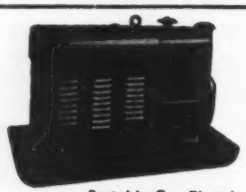

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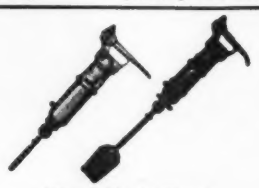

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650

DIESEL COMBUSTION SYSTEM—(58-p. booklet) Describes Lanova combustion system for diesel engines, emphasizing the principle of rotary turbulence of atomized fuel and air in the engine cylinder to promote complete and thorough combustion.—**Lanova Corp., 38-15 30th St., Long Island City 1, N. Y.**

651

GRATINGS—New catalog, illustrating and explaining uses of all types of riveted and welded open steel and aluminum flooring, grating, stair treads, catwalks and structural steel walkways, has just been published.—**William F. Klemp Co., 6608 S. Melvina Ave., Chicago 38, Ill.**

652

ASPHALT TILE FLOORING—(4-p. leaflet) Hints on installation and maintenance of asphalt tile flooring. Also specification data and warranty.—**Mastic Tile Corp. of America, 153 W. 57th St., New York 19, N. Y.**

653

WALL AND CEILING PANELS—Marlite plastic-finished wall and ceiling panels and other products for the building industry are described in a new catalog which gives uses and specifications, as well as illustrated installation instructions. Color chips are used to show the many colors in which Marlite is available. Another interesting feature is complete information and specifications on moldings, available in aluminum alloy, presdwood and plastic. Detailed information on the new bathroom accessories is also included with illustrations of recessed and flush mounting types.—**Marsh Wall Products, Inc., Dover, Ohio.**

654

SCRAPERS—(16-p. pamphlet) Devoted to problems of earth moving. Describes loading, hauling and spreading jobs with scrapers of three sizes hauled by Caterpillar track-type tractors. Publication is entitled "Caterpillar Scrapers at Work."—**Caterpillar Tractor Co., Peoria 8, Ill.**

655

WOVEN WIRE SCREENS — (4-p. folder) Pacific super-strength spring steel screens are fabricated with square or rectangular openings in double-crimp or flat-top construction. Designed for handling sand, gravel, coal and ore with vibrators, shakers, cones and cylinders.—**Pacific Wire Works Co., 4515 Sixth Ave., So., Seattle 8, Wash.**

P&H SINGLE PASS SOIL STABILIZERS

● On this soil-bituminous state highway in Texas, a P&H Stabilizer with one operator processed on an average of 8,000 square yards per day in a single pass. Maximum production often reached 1,200 square yards per hour!

There's little that's unusual in the speed of this Texas job. Such reports are being received from all over the country — where P&H Single Pass Soil Stabilizers are at work building excellent, all-weather surfaces more quickly.

Making maximum use of in-place materials, the P&H Stabilizer performs with accurately predetermined results, *all 8* basic requirements of soil stabilization — and does it with any type admixture and at a rapid pace.

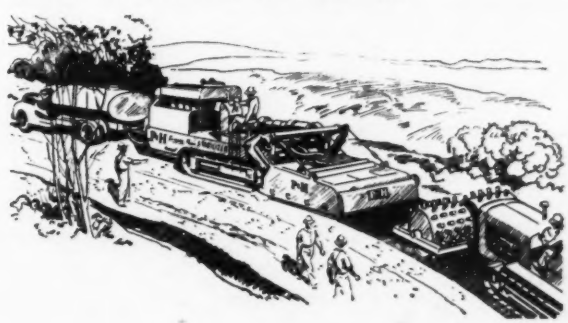
If you build secondary highways, streets, base courses, airport runways, etc., you should investigate the P&H Single Pass Soil Stabilizer. Ask for information.

FACTS ABOUT THE JOB! . .

Location of Project — State highway 274, Henderson County—from Tool to Kaufman County line.
Length of Project — 7.68 miles.
Width of Roadway — 20 feet (2 lanes of 10 feet each).
Type of Soil — Loamy sand.
Stabilizing Agent — 4 gal. cracked fuel oil per sq. yd.
Rate of Production — Average 8,000 sq. yds. per working day.

NEW MOTION PICTURES!

If you would like to see a P&H Stabilizer at work processing soil-stabilized roads — learn how it does it — write us for showing of full color, sound motion pictures. One covers soil-cement and the other soil-bituminous work.



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Compare the Cost—as well as the Quality—of the work

Machines, like men, must be judged by what they do. Moto-Pavers have now been on the job for well over a year. We are glad to have them judged by their performance on the road.

From coast to coast and from the lakes to the gulf, Moto-Pavers have been used on practically all types of road construction and maintenance work, including retread, bituminous resurfacing over gravel and old pavement, bituminous stabilization and oil mix on city streets, county roads and state highways.

Aggregates used included beach sand, gravel, crushed stone and slag. Bituminous materials included RT-2, 3, 7 and 8, RC-2, 3 and 4; MC-3 and 4, SC-3, 4 and 6, and various emulsions.

Construction costs varied widely, due to material, weather, traffic and other road conditions. However, typical cost tables reveal amazingly low costs per ton. These cost and performance figures have been summarized in a brief performance record and report which will be sent you on request. For convenience, use the coupon below.

Illustration at left shows aggregate being dumped directly from truck into front hopper of Moto-Paver. If desired, aggregate may be picked up from a windrow using the H. & B. Moto-Loader.

SEND FOR THIS PERFORMANCE RECORD AND REPORT

Hetherington & Berner, Inc.
730 Kentucky Ave., Indianapolis 7, Ind.

Please send copy of Moto-Paver Performance Record and Report to:

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CITY ..... ZONE ..... STATE .....

656

STRUCTURAL INSULATION—Bulletin tells all about Celotex Cemesto board, a structural insulating material consisting of genuine ferox-treated Celotex cane fiber insulation board surfaced on both sides with ⅛-in. asbestos-cement board, light grey in color. Moisture-proof, highly vapor resistant bituminous adhesive bonds the asbestos-cement to the Celotex cane fiber core. Product is used both for exterior walls and for interior partitions. Celotex Cemesto roof decks are applicable to wood or steel framing.—**The Celotex Corp., 120 So. La Salle Street, Chicago 3, Ill.**

657

HYDRAULIC POWER UNIT—(4-p. bulletin) Midget size hydraulic power unit named "Ten-Ton Tony" is intended for use on farm and road machinery for pushing, pulling or lifting. Measures 6x7x9-in. overall. Equipped with rugged gear pump. Requires only 2½ hp. to operate. Built-in, 4-way operating valve permits use of double-acting ram. Has capacity of 3 gal. of oil per min. at 1,200 rpm. at 1,000 psi. —**Hydraulic Press Mfg. Co., Springfield, Ohio.**

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The portability of Barco Gasoline Hammers means easier handling, plus the ability to do jobs in difficult or hard-to-reach spots. Barco is packed full of power, deals a smashing, battering attack that never slackens no matter how tough the going. And as for profit, Barco's mechanized muscles do *better* work, at lower cost. Barco is faster and stronger than ever before, yet weighs the same. Other new improvements include a more easily-opened carburetor valve, and an arrangement for holding the cable which prolongs the life of the cable where it comes out of the handle.

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IN CANADA: THE HOLDEN CO., LTD., MONTREAL, CANADA

RUD-O-MATIC TAGLINE

Provides positive, steady tension — holds buckets steady under all working conditions.

Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-o-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.

RUD-o-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact – it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery – see your equipment dealer – or write –

- *Dealers—selected territories in Midwest and Northwest are still open. Write for all details.*

RUD-o-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady – and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-o-MATIC.

McCAFFREY RUDDOCK *Tagline* Corporation

2131 East 25th St., Los Angeles 11, Calif.

658

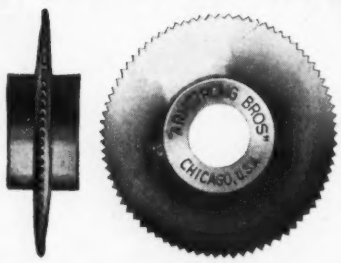
CONCRETE CARRIER—Pamphlet illustrates use of Dumpcrete body by ready-mixed concrete industry to haul air-entrained concrete, without agitation.—**Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio.**

659

UTILITY PUMPS—Circular gives facts on new self-priming centrifugal pump especially built for utility company service. Claimed that priming is automatic on suction lifts up to 25 ft. high. They are misers on fuel.—**Marlow Pumps, Ridgewood, N. J.**

660

SCARIFIER AND PULVERIZER—(Leaflet). Extra heavy-duty, tractor-hauled unit built in two sizes to cut 6- and 4-ft. widths. Designed to tear up old oil mats and macadam roads and prepare them for re-use. —**Wood Mfg. Co., 6900 Tujunga Ave., North Hollywood, Calif.**



Machined from special alloy tool steel, oil tempered and hardened, ARMSTRONG BROS. Knife Blade Cutter Wheels, penetrate pipe easily, cut smoothly and rapidly, and hold their keen edge. They come in sizes and types for all makes of pipe cutters.

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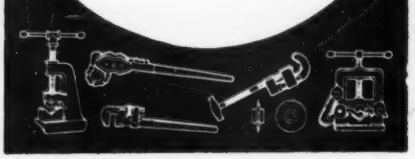

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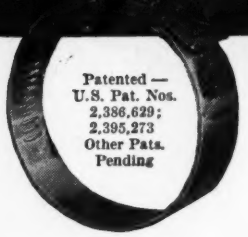

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Sturdily built. Stainless steel or carbon spring steel. Rust resistant. Mechanically interlocked saddle. Worm gear drive. No loose parts. Vibration-proof. Unaffected by high or low temperatures and pressures. Uniform "squeeze" on hose. Greater band strength.

FASTER TO INSTALL!

Save time. Easily installed. No need to remove hose. Self-locking. Will not collapse thin wall hose.

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They "stay put". Leak-proof. Extra long take-up. Reduce inventory requirements. Keep equipment on the job. Use them for all air, fuel and coolant lines on trucks, tractors, pumps, mixers, compressors, power shovels, motor graders, etc. Write for FREE SAMPLE. You'll like "Aero-Seal".

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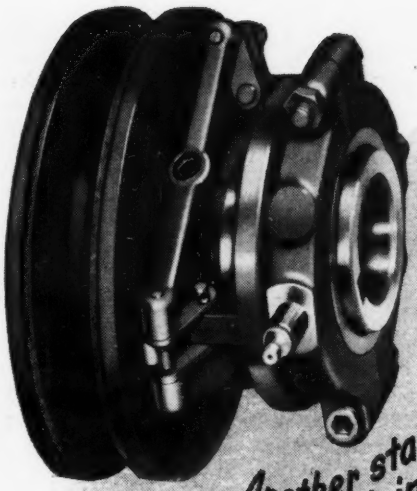

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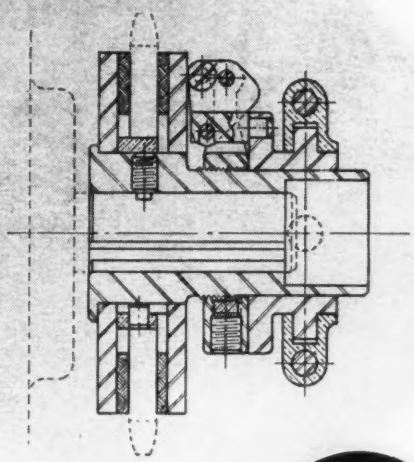
LATEST addition to the famous Morse line of Mechanical Power Transmission Products are these new Rockford Compact Small-Diameter Over-Center Clutches.

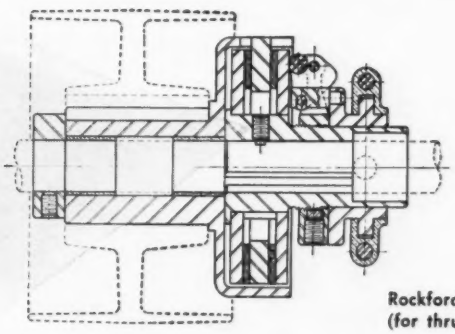
Using the same over-center principle as heavy-duty tractor and hoisting clutches many times their size, these compact clutches can be adapted to a great number of applications. Driving cups and plates adapt the basic clutch to sleeve type and cut-off applications.

Rockford toggle-type, over-center clutches have been used successfully in a wide variety of operations. Examples of applications are air compressors, dusting machines, feed grinders, packaging machinery and spraying equipment.

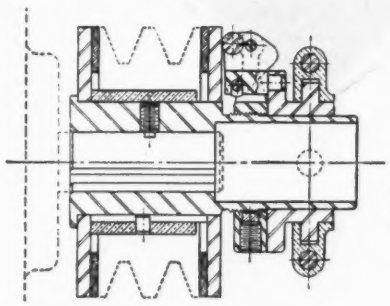
For list of other proved applications and complete technical data, send today for Morse Chain Catalog SDOC. Address Morse-Rockford Sales Division, Morse Chain Company, Dept. 148, 7601 Central Ave., Detroit 8, Michigan.



Rockford LMS Clutches (for plate sprocket drives)



Rockford LMT Clutches (for thru-shaft drives)



Rockford LMV Clutches (for "V" belt pulley drives)

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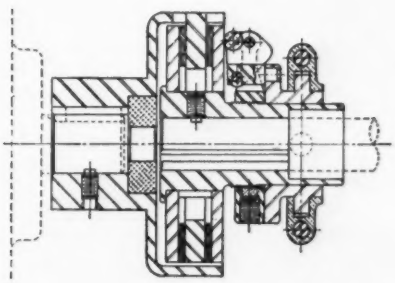

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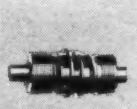

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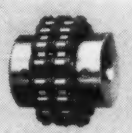

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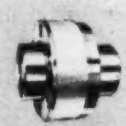

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IT'S A SPEEDY SWING LOADER!

Less lost motion on part of both loader and dump truck. The bucket swings (90° either way) up and over the waiting truck. Excellent visibility—hydraulic controls are easy to operate, convenient to reach. Mounts on International Crawler Tractors.

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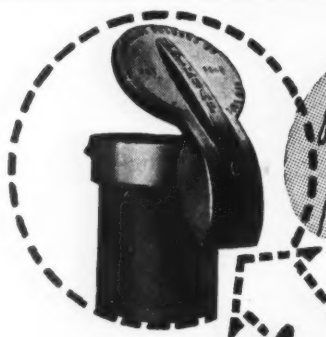

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THE CAP THAT DOES NOT FORGET TO CLOSE

Completely automatic—the "RAINCAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—can be installed in two minutes. F.O.B. Waterloo, Iowa.

- Immediate delivery
- Liberal Dealer Discount.

STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST

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2	2⅜"	1.90
3	2¾"	1.90
5	1⅞"	1.90
55	2"	1.90
5x	1¾"	1.90
6	1½"	1.90
66	1⅜"	1.90
7	2½"	1.90
8	3"	2.50
9	3⅛"	2.50
10	3¼"	2.50
11	3½"	2.75
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12	4"	3.00
123	4⅛"	3.00
125	4¼"	3.00
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661

PUMPS AND VALVES—Two Vickers bulletins describe piston type pumps, hydromotive controls and multiple unit valves. Latter provide finger-touch power hydraulic control for roadbuilding, maintenance, excavating, and snow removal equipment, as well as for industrial trucks and dump-truck hoists. Other bulletins tell about an hydraulic power steering system, a proportional type oil filter for hydraulic systems, balanced vane-type pumps, and hydraulic power units.—**Vickers, Inc., division of the Sperry Corp., 1400 Oakman Blvd., Detroit 32, Mich.**

662

HEAVY DUTY TRUCKS—(14-p. pamphlet) Describes and illustrates practically every type of truck and dump body design used in the specialized hauling of rock, earth, ore, and coal. Covers trucks and tractors, 4- and 6-wheel vehicles powered by gasoline, diesel and butane fueled engines. — **Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y.**

663

CALKING COMPOUND—A 15-p. booklet describes Bond-o, a jointing compound composed of sulphur and other inert minerals used to join cast-iron bell-and-spigot water pipe. It weighs only 25 percent as much as lead and is self-calking. Said to remain tight when subjected to expansion and contraction from excessive temperature changes. It makes dependable joints in water mains of any size.—**Northrop & Co., Spring Valley, N. Y.**

664

CONVEYOR BELTS—New catalog section on guide to proper selection of conveyor belt grades has just been published. Explains yardsticks employed in belt engineering to differentiate grades, pictures and describes the conveyor belts in its line, cites the common application for each and also devotes a page to special constructions obtainable in the various grades.—**The B. F. Goodrich Co., Akron, Ohio.**

665

FIRE RETARDANT WOOD—(12-p. booklet). Discusses ratings of various building materials, methods of treating wood to make it fire retardant, lists applications in which fire retardant wood is of special value and tests of fire retardant wood.—**Koppers Co., Inc., Wood Preserving Division, Koppers Building, Pittsburgh 19, Pa.**

WHEN OTHER MACHINES ARE "MOVING UP"

Bucyrus Walkers are MOVING DIRT

MUCH time ordinarily spent on moving about is converted into productive digging time when you put a Bucyrus-Erie walking dragline on your operations. The reason is simply that a Bucyrus-Erie cuts moving time by taking the most direct route. It can walk safely and surely in any direction, can change course by a mere swing of the revolving frame; no special steering mechanism is used — or needed. The machine is always ready to step off in any direction necessitated by working conditions—away from slides, along the edge of a steep bank, around obstructions, out of trouble's way.

With its exclusive rolling-cam walking traction, a Bucyrus-Erie takes every step safely, smoothly, quickly, cushioning the machine down. Rough ground seldom bothers because the walking shoes are mounted to pivot sidewise, conforming to any ground surface for a firm grip.

The walking efficiency of a Bucyrus-Erie gives you more time to use its "years ahead" digging efficiency!

24M47

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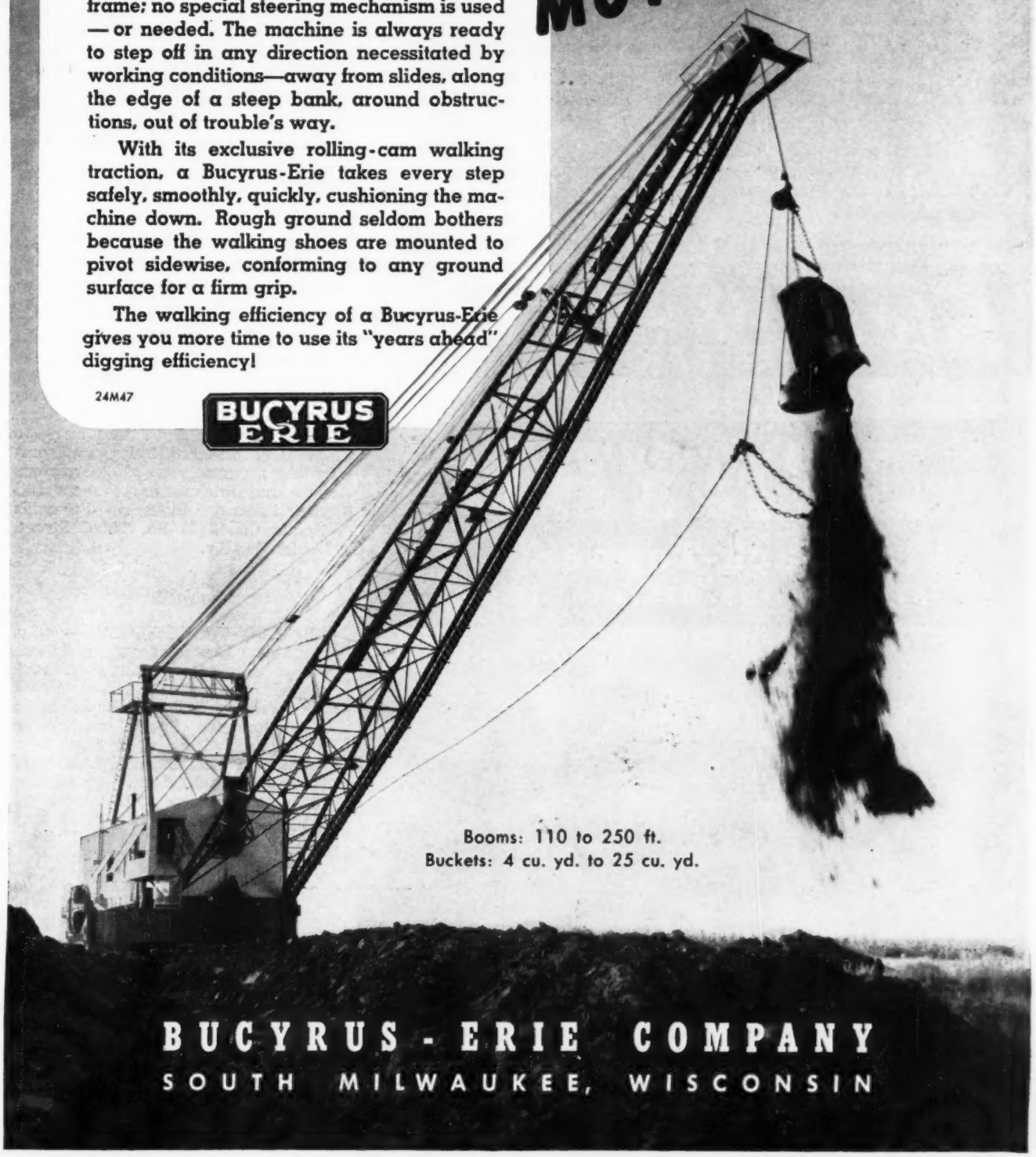

Booms: 110 to 250 ft.
Buckets: 4 cu. yd. to 25 cu. yd.

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You Save MUSCLE POWER with STERLINGS

It's so easy to wheel heavy loads in Sterling Wheelbarrows, only a minimum of muscle power is required. Sterling's perfectly balanced construction permits 80% of the load to be carried on the wheel . . . only 20% by the operator. This saving in muscle power increases efficiency . . . allows more loads to be hauled daily . . . reduces hauling costs.

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Although materials are still scarce, Sterling will make every effort to meet your wheelbarrow requirements just as soon as conditions permit.

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(For copies of bulletins listed, use coupon, p. 116.)

666

INSULATING CONCRETE—Some of advantages of this product are given in a circular such as permanence, incombustibility, economy, light weight and proof against rot. Photographs show typical short span structural roof decks, and specifications are given.—**Universal Zonolite Insulation Co., 135 S. LaSalle Street, Chicago 3, Ill.**

667

CRANKSHAFT GRINDER — (4-p. folder) Engine rebuilding tool works from top of block and is claimed to reach the end cylinders with the same ease as those in the center of the block. Eliminates need for handling heavy parts under chassis. Equipped with hand micrometer feed. — **Waterbury Tool Division, Vickers, Inc., Waterbury 91, Conn.**

668

SHEET AND PLATE ALLOYS—A 48-p. booklet gives technical information on various sheet and plate alloys, gages and sizes. Also an analysis of costs of aluminum sheet and plate as compared with other widely used metals. Briefly discussed are formability, weldability, riveting and joining, brazing, soldering, machinability, and resistance to chemical attack. Tables for computing accurately weight of various sizes and thicknesses of sheet and plate items are included.—**Reynolds Metals Co., 2500 So. Third Street, Louisville, Ky.**

669

DRILLED-IN CAISSONS — (8-p. pamphlet) Describes system of foundation columns anchored in rock sockets. Steel shell is driven to rock in specially designed leads by a steam hammer. Special methods of excavation within shell have been developed. Test and design data are presented for determining capacities of drilled-in caissons. Tabulation of drilled-in caisson jobs covers rock depths from 30 to 187 ft.—**Drilled-in Caisson Corp., 2 Park Ave., New York 16, N. Y.**

670

Building Panels — "Fenestra Building Panels for Up-To-Date Houses" is title of new folder in which information is provided about Fenestra steel panels that combine joist, bridging and subflooring. Use of these panels in connection with radiant heating is one of the subjects discussed.—**Detroit Steel Products Co., 3159 Griffin St., Detroit 11, Mich.**

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Famous all over the world for their fast charging, thorough "end-to-center" mixing and fast but fully controlled discharge. Ideal for central mixing plants because of low maintenance costs and rugged dependability, even when worked night and day. 4 sizes—1 to 4 yds.

SMITH-MOBILE AGITATORS

Meet all requirements such as fast loading, smooth agitating, effective mixing and HIGH discharge. Fast pouring or slow controlled discharge, as desired. No segregation. Large radius of spout distribution. 4 standard sizes.

★ If you are looking for BIGGER PROFITS from your Ready Mixed Concrete Plant, be sure to investigate both SMITH TILTERS for pre-mixing or pre-shrinking concrete and SMITH-MOBILE AGITATORS for delivering the pre-mixed or pre-shrunk concrete to the job. These modern, dependable machines are profit makers with a record of achievement that has never been equaled in the industry. They have many time saving and money saving features . . . enable you to deliver BETTER CONCRETE with speed and certainty, at low cost. Write today for descriptive literature.

FAST COMPLETE DISCHARGE

Smith-Mobiles discharge ALL the batch, whether it's high or low slump concrete. And the discharge is easily controlled. Fast when you want it fast . . . slow when you want it slow.

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SAVE TIME
On Every Job
WITH A
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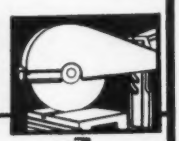
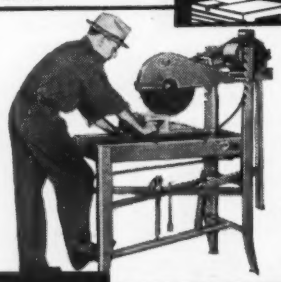
● FIRE BRICK
● BUILDING TILE
with ● CONCRETE BLOCKS
AMAZING Speed AND Accuracy

● You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save time — save material, assure better workmanship on every job.

Cuts DRY
Clipper's exclusive design is guaranteed to provide the highest economy with most rapid cutting speed. With or without foot pedal control.





Cuts WET
No dust. With foot pedal control or without. You can set the cutting head in locked position. The hardest materials cut with ease.

FAST and FLEXIBLE
The New Model HD-48 Clipper cuts dry just exactly the same as regular Clipper Masonry Saws.. and for Dustless masonry cutting just turn on the circulating system and slice thru the hardest materials. Proven by ten years use throughout the world. Guaranteed to provide the fastest cuts with lowest cost.

TAILOR MAKE SPECIAL SIZES
Yes . . . with a Clipper it's easy to slice thru Brick, Tile, Concrete, Glass, Marble, Porcelain or any kind of Refractories . . . Straight cuts, Angles or Mitres. CLIPPERS FOR EVERY JOB — Priced as low as $195. Write for Catalog Today!

TRY A CLIPPER FREE

THE CLIPPER MFG. CO.
2809 WARWICK ● KANSAS CITY 8, MO.
PHILADELPHIA CLEVELAND ST. LOUIS AUSTIN, TEX.

EQUIPMENT MEN
and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

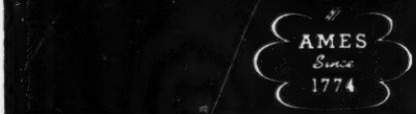
HOME OFFICE CHANGES—M. M. Yarrington has been named general manager and **Fred C. Wittig** assistant general manager of **Aeroil Products Co.,** West New York, N. J. . . . **Ralph H. Wise** has been made director of engineering of **Lustron Corp.,** Columbus, Ohio. . . . **Boyd Allen** is now staff manager of customer relations of the building products division of the **Johns-Manville Corp.,** New York City.

SALES STAFF NEWS—H. F. Groendyk is director of products sales for Manhattan Rubber division of **Raybestos-Manhattan, Inc.,** Passaic, N. J. . . . **Joseph P. Kleinkort** has been made general sales manager of the Ramapo Ajax division of the **American Brake Shoe Co.,** New York City . . . **J. R. Hildinger** has been appointed sales representative at the main office and factory of **Marion Power Shovel Co.,** Marion, Ohio, and **J. K. Dolan** in the Chicago office . . . **Andrew J. Lacock** has been appointed district manager of sales of **Lukens Steel Co.** and divisions at 50 Church St., New York 7, N. Y. . . . **Carl P. Simmons** has been made service engineer of the Philadelphia, Pa., territory for the **Nelson Sales Corp.,** Lorain, Ohio . . . **D. D. Hamilton** is to head the building materials section of the **Koppers Co. Inc.,** Pittsburgh, Pa. . . . **Rene Dansereau** is sales engineer of the Carter division of the Dominion Bridge Co. at Lachine, Que., and **MacKenzie MacMurray** will be attached to the company's Ontario division at Toronto **W. E. Simons** has been appointed general sales manager of **The Heil Co.,** Milwaukee, Wis., and **Harvey N. Pugh** is vice-president in charge of sales and advertising . . . **Charles R. Sorber, Jr.,** has been made district sales representative for the special chemical division of the **Pennsylvania Salt Mfg. Co.** . . . **John J. Risko** has been made assistant sales manager of the **Hendrick Mfg. Co.,** Carbondale, Pa. . . . **Francis McNamara** has been appointed eastern division sales district representative for **Caterpillar Tractor Co.** to contact distributors in Massachusetts, Maine, Rhode Island, the Maritime Provinces and Newfoundland . . . **O. B. Wilson** has been named industrial manager for the eastern sales region of the Brown Instrument division of

(Continued on page 170)

"AMES"
PONY
FEATHERWEIGHT
SOLID SHANK SHOVELS

Perfect Balance
●
Equipped with
SHOCK BAND
MADE FROM ONE SOLID BAR OF STEEL



1 — Blade is forged from solid bar of steel.
2 — "AMES" shock band protects and strengthens handle.
3 — High bend for perfect balance.
4 — Engineered to insure user completely satisfactory results.

Ask Your Jobber
●
AMES PRODUCTS
SHOVELS FORKS
SPADES HOES
SCOOPS RAKES
POST HOLE DIGGERS
AGRICULTURAL HANDLES
●
AMES BALDWIN WYOMING CO.
Parkersburg, W. Va. North Easton, Mass.

ACCURACY *that rolls out smooth as glass!*

- **Hydraulic Controls** — for easy handling
- **Continuous Course Correction**— corrects irregularities with successive courses
- **Powerful Six Cylinder Engine** — power to handle the heaviest truck
- **Four Wheel Drive**
- **Cutter Bar**—overlaps and compacts joint—"crowds" and compacts materials
- **Power Cut-Off**—permits carrying load over intersections and eliminates tag-end run-outs
- **End Gates** — permit feeding material out to sides with cutter bar extension
- **Screed Heater**— assures better handling of material
- **Crowning Adjustment** — for any crown or bank
- **Either Rear Roller**— can be disengaged for quick turning
- **Hopper** — big . . . adjustable . . . for narrow pavements
- **Sturdy, Heavy Construction**—that stands the strain of work without constant rebuilding
- **Adnun Carryall**—easily attached . . . makes moving up on jobs easy

● Look at that course behind the Adnun. That black top will roll out as smooth as a billiard table. Continuous Course Correction, the remarkable feature of the Adnun that corrects irregularities with each successive course, means smoother pavements. It means less preparation of subgrade and old pavements when recapping. It means true automatic leveling.

Add to this the important fact that the Adnun is built for the punishment that comes with handling heavy trucks. Contractors say Adnuns don't have to be rebuilt as often. Check the other features that Adnun brings you and plan to have one on your next black top contract.

THE FOOTE COMPANY, INC.
1910 State Street, Nunda, New York

ADNUN
TRADE MARK REGISTERED
BLACK TOP PAVER
MULTIFOOTE CONCRETE PAVERS
FOOTE KINETIC MIXERS

● For your concrete jobs—ask about the MultiFoote Duo-Mix (Double Drum) 34-E Paver and the MultiFoote Single Drum 34-E Paver. They bring you advantages found in no other concrete paver.

OWEN BUCKETS *are popular* for LOW HEADROOM

and thus are more adaptable to various operating conditions.

Owen Bucket heads are one-piece alloy steel castings, light enough to prevent top heaviness and designed for rigid arm connections.

Special head design eliminates wear on upper arm ends. Rack and wobble is prevented.

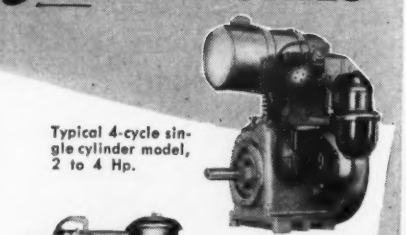
The Owen Bucket Company
6020 Breakwater Avenue, Cleveland, Ohio
Branches: New York • Philadelphia • Chicago • Berkeley, Cal.

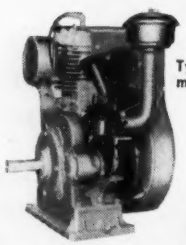
Increase The PRODUCTIVE CAPACITY of Your Mechanized Equipment with WISCONSIN *Air-Cooled* ENGINES

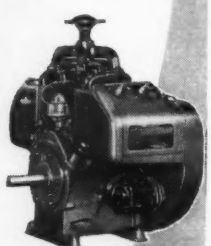
If you build or use any kind of equipment that *is* or that CAN be successfully engine-powered — there is a fairly definite certainty that you can actually increase the productive capacity of the machine by motorizing with a Wisconsin Air-Cooled Engine.

This rather broad statement is predicated on the fact that Wisconsin Engines are notable for continuous, high ratio power output as well as an absolute minimum of maintenance and servicing layups. In addition to the basic advantages of air-cooling, light weight, compact design and all-weather serviceability—you are assured of "Most H.P. Hours" of on-the-job operation, thanks to advanced engineering and heavy-duty design and construction.

Wisconsin Engines are worth looking into on all counts. Your interest will be heartily reciprocated.


Typical 4-cycle single cylinder model, 2 to 4 Hp.


Typical single cyl. model, 4 to 9 Hp.


Typical V-type 4-cylinder model, 15 to 30 Hp.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

(Continued from page 168)

Minneapolis-Honeywell Regulator Co. . . . **William Lee** has been made district manager of its new Houston, Tex., sales office at the **H. K. Porter Co. Inc.,** of Pittsburgh, Pa.

M. A. Boyle is sales manager of the solder division of **Alpha Metals, Inc.,** Brooklyn, N. Y. C. . . . **Frank M. Sweeny** has been appointed sales representative of **Iron & Steel Products, Inc.,** of Chicago, Ill., in the Baltimore, Md., district at 4136 Roland Ave., Baltimore 11, Md. . . . **Carl P. Simmons** has been appointed service engineer of the Philadelphia territory of the **Nelson Sales Corp.,** Lorain, Ohio. His office is Lansdowne Center Bldg., Lansdowne, Pa. . . . **Raymond K. Collick** has been named parts merchandising manager of the Detroit Diesel Engine division, **General Motors Corp.** . . . **Robert L. Lowder** has been named district sales manager in charge of the new Jacksonville, Fla., office of the **Link-Belt Co.** at 137 E. Forsyth St. . . . **John R. Queen** has been named dealer supervisor at New York for **Allis-Chalmers** for the district offices in New York, Buffalo, Rochester and Syracuse, N. Y., and Newark, N. J. . . . at Madison, Wis., **Nagle-Hart Tractor & Equipment Co.** and at San Jose, Calif., **Ditz Bros.,** will be Caterpillar products distributors.

John C. Barnes has been elected vice-president for sales of the **National Radiator Co., Johnstown, Pa.** . . . **J. Bentley Candy** has been appointed general sales manager, lubrication division, of the **Warren Refining and Chemical Co.,** Cleveland, Ohio . . . **Kenneth J. Whisler,** Syracuse, N. Y., and **W. George Sigler,** Pittsburgh, Pa., are new sales representatives of the builders' supply and flooring department of the Goodyear Tire & Rubber Co.'s chemical products division . . . **C. M. Adams** is now on the staff of the advertising department of **Caterpillar Tractor Co.,** Peoria, Ill. . . . **Jerome W. Brush, Jr.,** is assistant director of marketing and merchandising for **Raybestos-Manhattan, Inc.,** at 120 Broadway, N. Y. City. **David E. Cunningham** will succeed Mr. Brush as marketing supervisor of the Raybestos division at Bridgeport, Conn. . . . **Sidney G. Harris** is sales manager of the automotive division of **E. F. Drew & Co., Inc.** . . . **Richard M. Stone** has been appointed industrial sales manager of the **Allis-Chalmers Tractor division,** and **W. D. Nesbeitt** is manager of the Spokane, Wash., district office . . . **Frank J. Cain, Jr.,** has been named sales manager of the **Carolina Giant Cement Co.,** Hurleyville, S. C. . . . **A. F. G. Raiker** has been appointed assistant director of sales in the St. Louis, Mo., general sales office of **Bemis Bro. Bag Co.** . . . The former apparatus sales department and the arc welding sales department are merged into one department to be known as the equipment

(Continued on page 172)

OXYGEN BOMB TESTS BLAST RUBBER BREAKDOWN

QUAKER PRE-TESTED BELTS, HOSE, PACKINGS

. . . get a long lease on life

. . . give plant economy a lift

Each batch of rubber used in making Quaker products is pre-tested for toughness, adhesion, resistance to aging. Shown above, samples of rubber compounds are being subjected to the oxygen bomb test—a miniature "torture chamber" that crams the effects of two years of severe operation into four grueling days. Performance-proved assurance that each rubber compound "can take it" is essential before being built into Quaker belting, hose, packings.

Check the panel on the right and see how Quaker pre-tested products can help keep operating costs low and output up, in your company. Remember—Quaker has been supplying quality rubber products to Industry for 63 years . . . pre-tested and proved for peak performance.

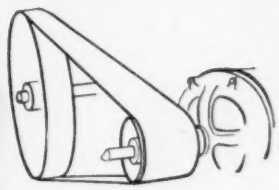
QUAKER RUBBER CORPORATION

PHILADELPHIA 24, PA. • New York 7 • Cleveland 15 • Chicago 16 • Houston 1

Western Territory

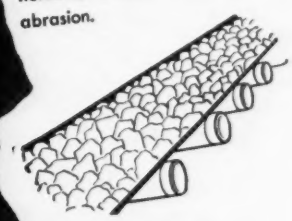
QUAKER PACIFIC RUBBER CO. • San Francisco 5 • Los Angeles 21 • Seattle 4

WHAT QUAKER Pre-Tested Products mean to the Construction Field



STEADY GRIP . . . LESS SLIP

Quaker V-belts and flat belting are pre-tested to provide plenty of grip, plenty of pull for more power. Pre-tested rubber stays flexible, withstands aging and abrasion.



RUGGED WEAR RESISTANCE

Quaker pre-tested conveyor belting resists abrasion, stress and strain under severe loads. Rubber and cotton duck are pre-tested for toughness, long life.

LONG SERVICE AT HIGH PRESSURE

Quaker hose provides low-cost handling of steam, air, liquids, volatiles. Pre-tested rubber remains pliable, flexes easily, combats breakdown.

●

ENGINEERING SERVICE

When belting, hose, and packing problems bog down efficiency in your plant, call your Quaker Distributor for a quick solution.

QUAKER RUBBER CORPORATION PHILADELPHIA, PA. QUALITY SINCE 1885

QUAKER RUBBER PRODUCTS

custom made for every industrial use

NOW Rolled from Alloy or Mild Steel

Caine CORR-PLATE **Steel Piling**

Rolled from a new steel alloy, Caine Corr-Plate is now 25% stronger and has nearly 100% greater corrosion resistance. This alloy makes available equal strength and nearly double the life in a 25% lighter piling. Approved by Highway Departments and U. S. Engineers.

Caine Corr-Plate Steel Piling has been used the world over for Foundations, Dams, Retaining Walls, Docks, Levees, Bulkheads, Sewers, Disposal Plants and hundreds of other jobs—it's stronger, lighter, nestable, easy to drive and water tight; can be re-used again and again.

Doubled life and 25% greater strength make Caine Corr-Plate Steel Piling the bargain buy in piling!

NOW, MORE THAN EVER BEFORE . . .

STRONGEST PER POUND WEIGHT

CAINE STEEL COMPANY

STEEL PILING DIVISION, 1820 N. Central Avenue, Chicago 39, Illinois

2278-R

In Concrete Vibrators... the FLEXIBLE SHAFT is the heart of the machine!

Your shaft stands the gaff when you use STOW Concrete Vibrators. The rugged, tough, heat-treated driving core keeps on the go—safe in the protective cage of spiral oil-tempered flat wire. Three layers of wire-braid give strength and support, prevent stretching—while the smooth, resilient, abrasion- and oil-resistant cover seals the shaft from grit and moisture, slides easily over sharp or rough surfaces.

Yank it around corners, drag it through aggregate, tow the motor with it—your STOW Flexible Shaft stays on the job, pounding out 7200 vibrations every minute.

When the SHAFT is right, when the Power Plant is right, when the Vibrator Head is right, and the Carry Handle is right—the Vibrator itself is RIGHT . . . you know it's a STOW.

STOW Manufacturing Co., 31 Shear St., Binghamton, N.Y.

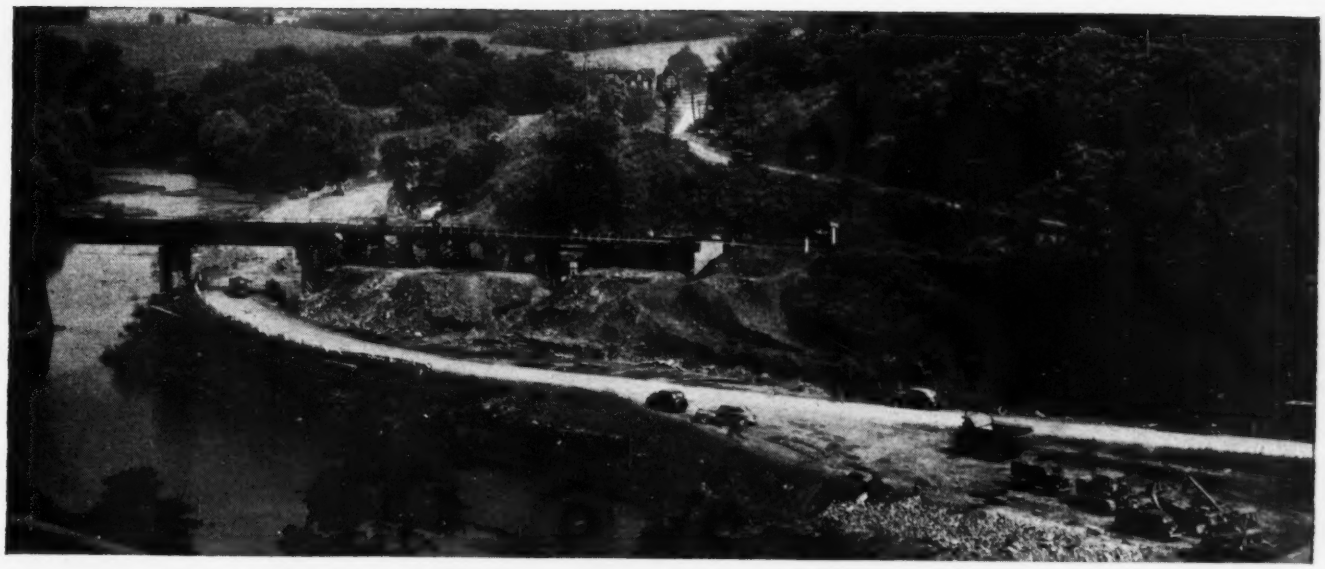
(Continued from page 170)

sales department, it is announced by **H. F. Henriques,** general sales manager of **Air Reduction Sales Co.,** New York City . . . **C. C. Wiley,** district sales manager for Link-Belt Co. at Birmingham, Ala., has been appointed to a similar position at Baltimore, Md., succeeding **H. M. Bowman** who has gone to Chicago to be assistant divisional sales manager for power transmission. **James T. Bell** succeeds Mr. Wiley at Birmingham . . . **Roy Schwab** will head the new Chicago, Ill., branch of the **Cherry Rivet Co.** of Los Angeles, Calif., at 5707 W. Roosevelt Road, Cicero, Ill. . . . **Jas. W. Kelley** has been added to the Tulsa, Okla., sales engineering staff of **Vickers, Inc.,** of Detroit, Mich., and **Fred V. Gieryn** at Rochester, N. Y. . . . More than 40 salesmen from all over the U. S. attended the recent annual sales meeting of the **Morse Chain Co.,** Detroit, Mich.

DEALER APPOINTMENTS—Hamilton Steel Co., 12,875 Taft Road, Cleveland, Ohio, and **Arthur C. Harvey Co.,** Boston, Mass., have been appointed distributors of its aluminum mill products by the **Reynolds Metals Co.** . . . **Southern States Iron Roofing Co.** has gone out of the mail order and retail business, and Everwear Aluminum roofing, paint and all other products will be sold through dealers only . . . **Penn Central Equipment Co.,** Altoona, Pa., has been made a distributor for the Hewitt Rubber division's industrial hose, conveyor and transmission belting and packing . . . **Chavigny Co.,** Houston, Tex., is sales agent for Hardinge pulp and paper, waterworks and sewage equipment in southern Texas.

Larkin Machine & Equipment Co., Inc., Rockville Center, N. Y., has been appointed a dealer for **Davey Compressor Co.,** Kent, Ohio . . . **Frericks and Porterfield,** Columbus, Ohio, will act as special agents in central Ohio for the **International Derrick & Equipment Co.** . . . **Buchanan Co.,** Kansas City, Mo., has been appointed sales agent for Lima shovels, cranes and draglines in Oklahoma, Kansas and western Missouri . . . **Bow Lake Equipment Co.,** Seattle, Wash., has been appointed distributor for Noble concrete batching equipment in western Washington and British Columbia . . . **Levinson Steel Sales Co.,** Pittsburgh, Pa., is a full-line distributor for the **Chase Brass and Copper Co.** . . . **James T. Henry** has been added to the staff of **L. S. Luther & Co.,** Washington, D. C., representative of the **Liquid Conditioning Corp.** of Linden, N. J. . . . A complete new line of **Gorman-Rupp** centrifugal, self-priming contractors' pumps was recently introduced to Gorman-Rupp distributors from more than 20 states who

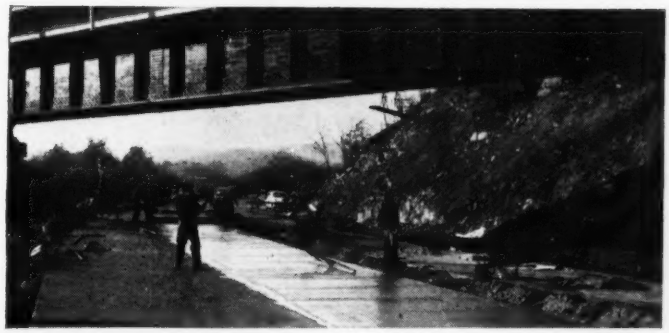
(Continued on page 174)



Old road went through narrow underpass (left center), then turned sharply up hill, past farmhouse. New underpass will accommodate 4 lanes, and highway will skirt river.

Taking a Kink Out of the Lincoln Highway

Tons of rock and limestone were moved to make way for new underpass, built adjacent to old highway.



Double-barrelled underpass starts to take shape. Bethlehem structural steel, in spans of 118 ft and 54 ft, was erected without interrupting railroad traffic.

At another location on job, Bethlehem reinforcing bars are placed atop 34-ft-span reinforced-concrete bridge.

Dale W. Detwiler (left), partner in New Enterprise Stone and Lime Co., points out job detail to R. S. Over, construction superintendent.

As part of its road-modernization program, the Pennsylvania Department of Highways has relocated the Lincoln Highway (US 30), in the vicinity of Everett, Pa., thus eliminating a sharp curve and narrow underpass. Construction of the new 2- and 4-lane, 2-mile stretch of road, handled by New Enterprise Stone and Lime Co., New Enterprise, Pa., included building a long revetment, a reinforced concrete bridge, and a railroad underpass. Bridge reinforcing, structural steel, bar mats and road joints were supplied by Bethlehem.

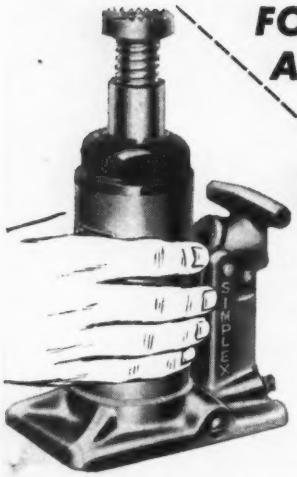
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

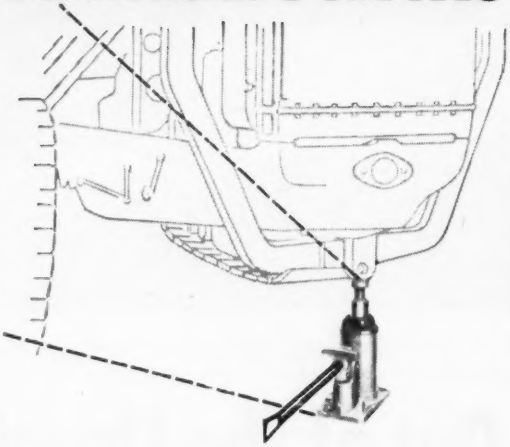
Road Joints • Reinforcing Bars • Bar Mats
Guard Rail • Wire Rope and Strand • Spikes
Timber Bridge Hardware • Structural Shapes
Guard Rail Posts • Hollow Drill Steel
Bolts and Nuts • Tie-Rods • Fabricated Steel

BETHLEHEM STEEL



FOR LOW COST LIFTING ON ALL CONSTRUCTION JOBS —

SIMPLEX HYDRAULIC JACKS



Rugged strength, safety, versatility — get all three with Simplex Hydraulic Jacks. Get the "low cost of lifting" plus jacking power that makes construction work go faster and easier.

Whatever your need, there's a Simplex Hydraulic Jack to do the job with efficiency that means hours and dollars saved. There's extra safety, too, with Simplex — every model is tested to 50% over rated capacity.

Other features that insure easier, faster, more dependable operation include Neoprene packing seals, pressure tested bases, a long pump stroke that requires less effort, operation either horizontally or vertically. Available in 8 models — 3 to 100 ton capacities.

SEND FOR NEW HYDRAULIC JACK BULLETIN TODAY!

Simplex LEVER · SCREW · HYDRAULIC Jacks

TEMPLETON, KENLY & COMPANY
1008 South Central Avenue · Chicago 44, Illinois

PRECISION-BUILT WECO HEAVY-DUTY BLOCKS

Extra Strength throughout to withstand sudden shock and strain

Watch-like precision is maintained throughout WECO Block design materials and manufacture. Specimen blocks have been tested to 12 tons with extra strength to take more load. Full swiveling. Shake-proof washers throughout. Proved in heavy duty oilfield service for general industry use. Write for block catalog.

- Drop Side
- Forged Steel Hook
- Snarl-proof

WELL EQUIPMENT MFG. CORP.
Subsidiary of Chiksan Company
Houston 1, Texas
Exclusive Sales Representative Outside Mid-Continent Area
CHIKSAN COMPANY
Brea, Calif. New York 7
Export Sales: CHIKSAN EXPORT COMPANY, Brea, Calif. New York 7

WECO
Manufacturers and Distributors of Oilfield, Refining, Marine and Industrial Equipment

(Continued from page 172)

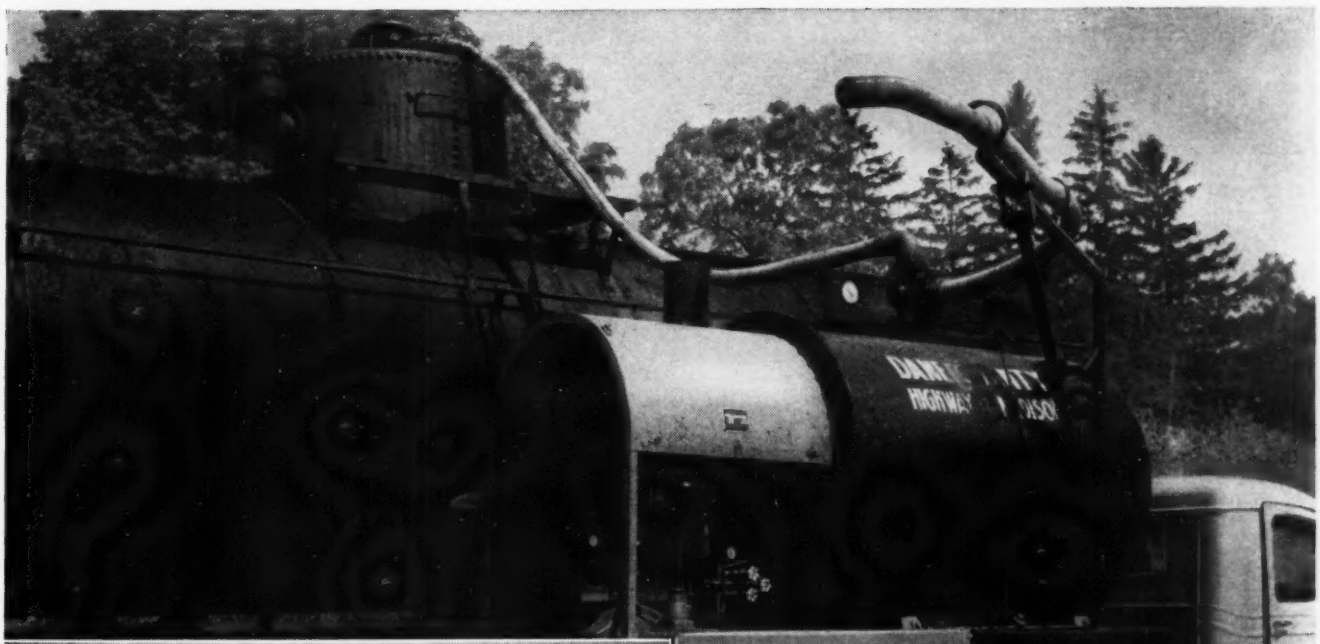
attended a 2-day preview showing at the Gorman-Rupp plant in Mansfield, Ohio . . . The Ball & Roller Bearing division of **Link-Belt Co.** announces the appointment of **Arthur E. Maha** as assistant sales manager for the central division, with headquarters at the Dodge plant, Indianapolis, Ind.

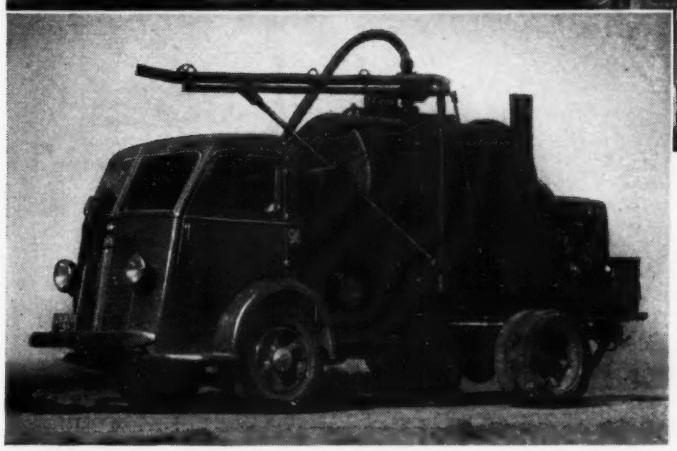
PERSONALITIES—Paul Fahrney, formerly president of **American Bitumuls Co.,** is now vice-president of the parent company, **Standard Oil of California; C. W. Stewart** has been made president of **American Bitumuls; L. P. Street** is general sales manager and **J. H. Fenton** is district manager at Baltimore, Md. . . . **A. M. Davis** of Lansing, Mich., has been appointed manager of the mid-western offices of the **Portland Cement Association** of Chicago . . . **J. Gardner Martin** of Detroit, Mich., will succeed Mr. Davis at Lansing as district engineer . . . **Robert A. Lawson** has been made assistant division manager of the Findlay division of **Gar Wood Industries Inc.,** at Findlay, Ohio . . . **David C. Affleck** has been promoted to assistant chief engineer of the **Gary Steel Works, U. S. Steel Corp.** . . . **L. M. Cassidy,** vice-president for sales of **Johns-Manville Co.,** has been elected chairman of the board of governors of the **Asphalt Roof Industry Bureau.** . . . **P. C. Rowe,** executive vice-president of the **Flintkote Co.** was named vice-chairman . . . **Carl D. Franks** has been elected vice-president for promotion of the **Portland Cement Association** in Chicago . . . **Roger W. Batchelder** has been made assistant to the president of the National Bearing Division of the **American Brake Shoe Co.** and **Wm. H. Old** general purchasing agent.

R. R. Tatnall has been appointed field service metallurgist in charge of customer relations for **The Colorado Fuel and Iron Corp.,** Wickwire Spencer Steel division. . . . **N. S. Sanborn,** Seattle, Wash., has been made West Coast district manager for York-Heat automatic residential heating equipment for **York-Shipley, Inc.,** York, Pa. . . . **Frank R. Cooper** has been advanced from vice-president to president of the **Howard-Cooper Corp.,** heavy equipment distributers, Portland, Ore. . . . **John M. Garoutte** is works manager of the **Permanente Cement Co.,** at Permanente, Calif. **Howard Church** will succeed Garoutte as works manager of the company's alumina plant at Baton Rouge, La. . . . . **John M. Palmer,** sales manager of the **Lee Clay Produce Co.,** Clearfield, Ky., has been elected president of the **National Clay Pipe Mfrs. Assn.** . . . **Ralph V. Baker,** assistant secretary, has been named a vice-president of **Omega Machine Co.,** a division of **Builders Iron Foundry,** Providence, R. I. . . . **Robt.**

(Continued on page 176)

All hooked up and ready to deliver hot oil . . . fast!





Truck-mounted Booster. Heats by direct firing. Loads direct to distributor or returns to tank car. 2 sizes for truck or trailer mounting.

Check These Advantages

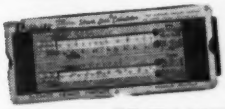
- Heats material 3 times as fast as steam.
- Heats to higher temperatures.
- No steam or water necessary.
- Heats only amount of material required.
- Circulates material while heating—no separation or damage —assures uniform application.

You Get All the Hot Material You Need Right When You Need It — With Cleaver-Brooks Portable Boosters

CLEAVER-BROOKS Portable Pumping Boosters get pumpable bituminous materials out of tank cars and raise it to desired temperatures in almost unbelievable speed.

With Cleaver-Brooks Boosters, the heating speed does not depend on the size and conditions of tank car coils. It heats direct and 3 times as fast as any other method. What's more, you need only heat the amount of material you need — no heating of the entire car.

Cleaver-Brooks Boosters are reliable, long service, low maintenance units. Most of the original models, built 15 years ago are still giving dependable every day service. There are more Cleaver-Brooks units in service than any other make. For full details write for bulletin RM 102.



Write on Your Business Letterhead . . . For the Bituminous-Mix Calculator — a ready reference slide rule showing weight of mix needed in lbs. and tons based on area and depth of area to be covered.

CLEAVER-BROOKS COMPANY
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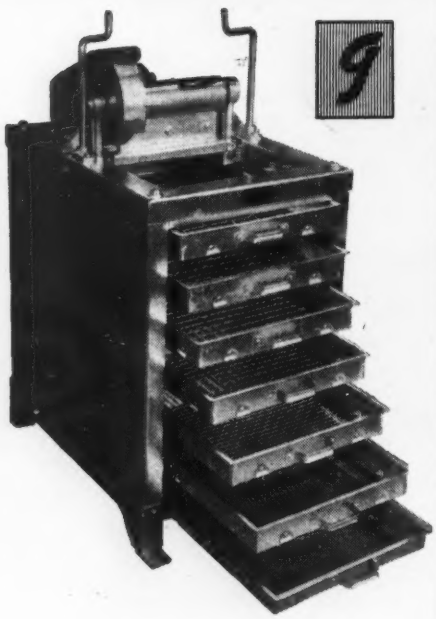
Cleaver-Brooks

PIONEERS AND ORIGINATORS OF

TANK CAR HEATERS . . . BITUMINOUS BOOSTERS . . . AUTOMATIC STEAM PLANTS

Better - Faster - More Efficient

GILSON Mechanical Testing Screen



• The Gilson Testing Screen is designed for efficient sizing of test samples of crushed stone, gravel, slag, and similar materials.

Better—because of wide range in a single machine—size range 4" to 200-mesh.

Faster—because it makes 2 to 7 separations simultaneously in 3 to 5 minutes.

More efficient — because many convenient features minimize human error and provide accurate tests which can be closely duplicated.

The Gilson screen accommodates samples up to one cubic foot. It will pay you to investigate the Gilson Testing Screen for controlled fully guaranteed testing of your materials.

Write for full descriptive literature.

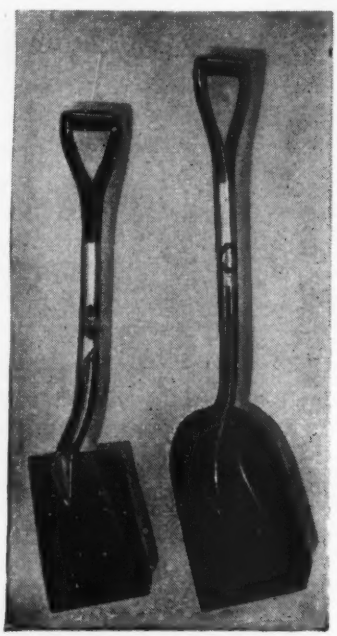
GILSON SCREEN COMPANY
Box 186 Mercer, Pa.

(Continued from page 174)

A. Lamson has been made assistant division manager of the Findlay division of **Gar Wood Industries, Inc.** at Findlay, Ohio. . . . **Carl D. Franks** has been elected vice-president for promotion of the **Portland Cement Assn.** . . . **L. M. Keating,** assistant to the president in charge of distribution of the **A. O. Smith Corp.,** has been appointed executive administrator of the company's southwest district office in Houston, Tex. . . . After 41 years of service with the **American Steel and Wire Co., Wm. H. Dodge** has retired as Chicago district traffic manager of that U.S. Steel subsidiary. . . . **A. O. Anderson** has been appointed senior field engineer of the western division for **Rock Engineering Co.,** Pittsburgh, Pa.

Chas. F. Kennedy has been elected president of the **Kennedy Valve Mfg. Co.,** Elmira, N. Y. . . . **Thomas T. Parker** is pressed metal manufacturing engineer at the Portland, Ore., plant of the **Hyster Co.** . . . **Charles S. Redding** has completed 40 years with **Leeds & Northrup Co.** . . . **Jens C. Holm** has been appointed director of engineering for the **Marquette Cement Mfg. Co.,** Chicago, Ill . . . **George R. Frankland** has been made Chicago district manager of the **Johns-Manville Industrial Products Division,** succeeding **C. H. Hall** . . . **H. R. Ray** is special engineering con-

(Continued on page 178)



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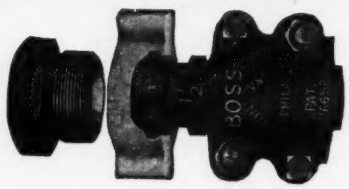
Plants: New Castle, Ind.; Chicago, Ill.; Kalamazoo, Mich.



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GROUND JOINT FEMALE HOSE COUPLING STYLE X-34

A *washerless* coupling with a reputation for unequalled strength, durability and safety on high or low pressure steam, air, water and hydraulic hose. Corrugated stem; large wing nut; powerful "Boss" Offset and Interlocking Clamp—proof against straight line leaks and blow-offs. Sizes ¼" to 6". Cadmium plated—rustproof.

* * *

For *washer* type couplings of otherwise identical design, specify "Boss" Style W-16.

* * *

"Boss" Male Couplings, Style MX-16, are also furnished with super-strong "Boss" Offset and Interlocking Clamps.

Stocked by Manufacturers and Jobbers of Mechanical Rubber Goods.

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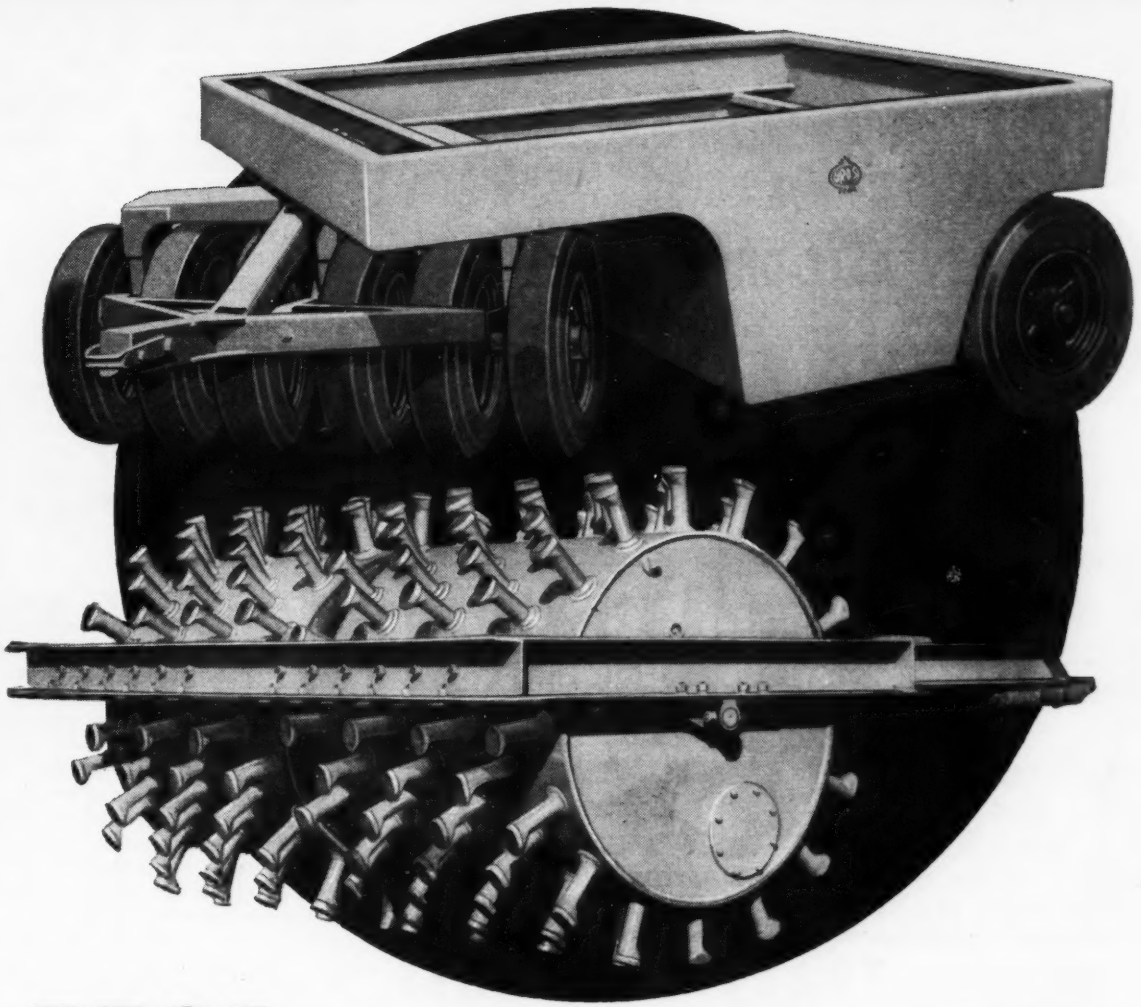

BROS Pneumatic Tire Rollers and Tampers

• Every type of compaction work calls for different specifications of soils and densities. But always the job calls for correct and complete compaction . . . thorough stabilization free of voids and soft spots.

To do these jobs quickly and at low cost, *Bros* offers a compacting tool designed for specific soils and densities.

The *Bros* line includes the famed *Bros* Pneumatic Tire Rollers in oscillating Straight Wheel and oscillating Wobble Wheel types* . . . and *Bros* Tamping Rollers from the single sheep foot roller to the new *Bros* Giant Tamper which delivers a pressure of 800 pounds per square inch, meeting the requirements of earth dams, airport-runways and super-highways.

Write today for informative booklets discussing modern compaction and the application of *Bros* rollers in meeting modern requirements with economy. Bros Boiler & Manufacturing Co., Minneapolis 14, Minn.

**Only Bros makes both oscillating Straight Wheel and oscillating Wobble Wheel Rollers. Patent Nos. 20241824, 2241098, U.S.A. 400228, Canadian.*

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HOT ASPHALT . . . QUICK!

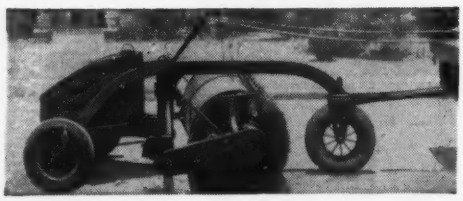
For heating all types of asphaltic material in tank cars or truck tanks . . . Will thaw one car while circulating and loading out another car.

• GRACE
• RAPID
• FIRE
• HEATER

With the Rapid Fire Combination heater, two units on one chassis are on the job — designed for pumping heavy asphalt and road oils under ALL conditions.

GRACE 2-WAY AXLE-DRIVEN SWEEPER

Simple transmission and pivoting mechanism assures easy operation of this multi-service sweeper. Brush, featuring long life bristles and steel shaft to eliminate warping, may be changed to sweep right or left at angles up to 30° in a few seconds.



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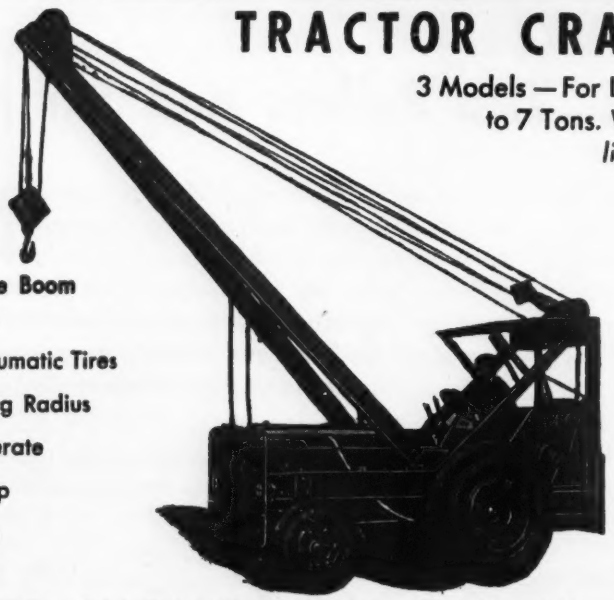
3 Models — For Loads Up to 7 Tons. *Write for literature.*



Special Type Boom Designed
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Short Turning Radius
Easy to Operate
Low Up-Keep
Clear Vision
Live Boom

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Plant: Clifton, N. J.
SALES REPRESENTATIVE
MERCER-ROBINSON COMPANY, INC.
30 CHURCH ST., NEW YORK 7, N. Y.

(Continued from page 176)

sultant for **Economy Pumps, Inc.**, Hamilton, Ohio . . . **Kenneth V. McCaleb** has been appointed superintendent of the Cornelia, Ga., plant of the Lumite division, **Chicopee Mfg. Co.** . . . **W. M. Myers,** assistant treasurer of **Rockwell Mfg. Co.,** Pittsburgh, Pa., has retired after serving the firm for 46 years . . . **W. H. Streit** has resigned as manager of the **Terre Haute, Ind., Water Works Corp.,** and is succeeded by **L. G. Hall** . . . **B. J. Grimm** and **J. F. Heschong, Jr.,** have been named eastern division parts manager and assistant, respectively, for **Caterpillar Tractor Co.** . . . **Frank R. Cooper** has been advanced from vice-president to president of the **Howard-Cooper Corp.,** heavy equipment distributors, Portland, Ore. **W. A. Wyle** becomes vice-president and **Frank Parker,** general sales manager . . . **John M. Garontte** has been named manager of the **Permanente Cement Co.**'s plant at Permanente, Calif. . . . **J. A. Butler** has been named treasurer of the **Falk Corp.,** Milwaukee, Wis. . . . **L. L. Smith** on April 6 completed 40 years of service with the **B. F. Goodrich Co.,** Akron, Ohio.

MISCELLANY — SKF Industries, Inc., announces that its branch office at Charlotte, N C., will become a district headquarters for North and South Carolina, 74 counties in southern Virginia, 30 counties in eastern Tennessee and two in northern Georgia . . . An all-inclusive group insurance plan has been made available to all employees of the **Universal Concrete Pipe Co.,** with plants in 15 cities of eight states . . . **Structural Products Co.** has resumed production of insulex glass blocks. A subsidiary of **Owens-Illinois Glass Co.**. the company was formed to operate four building material plants in Muncie, Ind., Columbus, Ohio, and in Berlin and South River, N. J. . . . **Fuller Mfg. Co.,** Kalamazoo, Mich., has bought the complete facilities of the **Reed Foundry and Machine Co.** of that city, providing 40,000 sq. ft. and capacity will be 15 tons of gray iron castings daily . . . **Holland Metals Co.** division of the **New Holland, Pa., Machine Co.** has moved into its new plant at Mountville, Pa. The company makes roofing and siding and associated aluminum products . . . Ground has been broken for a large addition to the warehouse of the **Allied Steel Products, Inc.,** Cleveland, Ohio . . . Establishment of fabricating plants by dealers in major cities to furnish steel framework for multiple-unit dwellings, single homes and commercial buildings has been announced by the **Great Lakes Steel Corporation's Stran-Steel division.**

The business and assets of **Western Crane Service Corp.** have been purchased by **Fritz Awalt,** who will operate the business as **Western**

(Continued on page 180)

Compare NEW DODGE "Job-Rated" TRUCKS feature for feature!

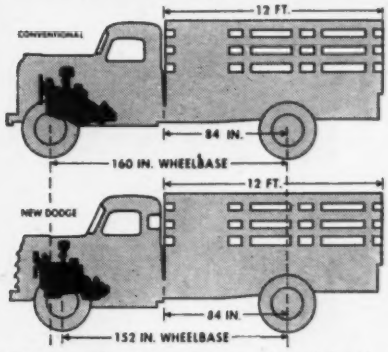
Read this 10 Point Comparison

(Dodge Model F-152; 14,500 pounds Gross Vehicle Weight—and Comparable Competitive Models.)

FEATURES AND ADVANTAGES	DODGE "Job-Rated" TRUCK	TRUCK "A"	TRUCK "B"	TRUCK "C"	TRUCK "D"
Wheelbase	152 in.	161 in.	158 in.	159 in.	161 in.
Cab-to-Axle—to take 12-foot body	84 in.	84 in.	84.06 in.	84 in.	84 in.
Wide-Tread Front Axles (shorter turning—more stability)	62 in.	56 in.	60.03 in.	58⅜ in.	56 in.
Modern "Cross-Type" Steering	Yes	No	No	No	No
Turning Diameter * —Left —Right	50½ ft. 50½ ft.	61½ ft. 61½ ft.	60½ ft. 54½ ft.	54½ ft. 54½ ft.	66½ ft. 66½ ft.
Maximum Horsepower	109	93	100	93	100
Total Spring Length (Front and Rear "Cushioned Ride") †	194 in.	171⅛ in.	162 in.	176 in.	182 in.
Cab Seat Width (Measure of Roominess) ‡	57¼ in.	52⅛ in.	51½ in.	47½ in.	52¼ in.
Windshield Glass Area ▲	901 sq. in.	713 sq. in.	638 sq. in.	545 sq. in.	713 sq. in.
Vent Wings plus Rear Quarter Windows	Yes	No	No	No	No

* To outside of tire (curb clearance.) Computed from data based on tests or computations obtained from usually reliable sources. † All four springs. ‡ Measured from production models. ▲ Computed from width and depth measurements; no allowance for contours.

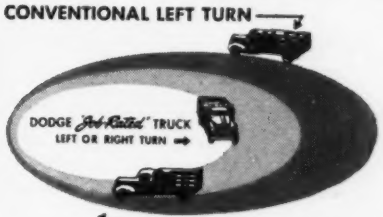
Better Weight Distribution Easier Handling Shorter Turning Diameters



Front axles have been moved back, engines forward, placing more load on the front axle. While cab-to-axle dimensions are the same, wheelbases are shorter, giving better weight distribution, and increased payload.

This new weight distribution, combined with longer springs, produces a marvelous new "cushioned-ride."

You get still more comfort from new "Air-O-Ride" seats, with their easily controllable "cushion of air."



You can turn in much smaller circles, both right and left—you can back up to loading platforms or maneuver in crowded areas with greater ease—because of new type "cross-steering," shorter wheelbases, and wide tread front axles. In all, 248 different "*Job-Rated*" chassis and body models. Up to 23,000 lbs. G.V.W. Up to 40,000 lbs. G.T.W.

1—PLENTY OF HEADROOM.

2—STEERING WHEEL . . . right in the driver's lap.

3—NATURAL BACK SUPPORT . . . adjustable for maximum comfort.

4—PROPER LEG SUPPORT . . . under the knees where you need it.

5—CHAIR-HEIGHT SEATS . . . just like you have at home.

6—7-INCH SEAT ADJUSTMENT . . . with safe, convenient hand control.

7—"AIR-O-RIDE" CUSHIONS . . . adjustable to weight of driver and road conditions.

(Continued from page 178)

Crane Service at its Berkeley, Calif. yard and office. . . . **S.K.F. Industries, Inc.** now has 15 district and 4 branch offices in the U.S., the latest at Charlotte, N. C. . . . **Berry Asphalt Co.** has moved its main office from Chicago, Ill., to Magnolia, Ark. . . . **Northwest Plywood** manufacturers and government officials met in Washington, D. C., March 30 to discuss channeling plywood to pressing housing needs. . . . **The Cromar Co.** Williamsport, Pa., has recently resumed the manufacture of Cromar factory-finished oak flooring.

Liquid Conditioning Corp. is completing an addition to its plant at Linden, N. J. . . . An elastic, acid resistant and water repellent coating for insulation has been developed by **Reardon Industries,** Cincinnati, Ohio . . . **R. G. LeTourneau, Inc.,** has expanded its marketing program and has issued a clarification of its corporation marketing policy as it applies to recent product diversification. LeTourneau is now organizing a new group of specialized distributors to handle the new products, which include house building, material handling, and heavy construction equipment. The company has a new full color sound movie entitled "Material on the Move," available from the Peoria, Ill., office or through Caterpillar distributors.

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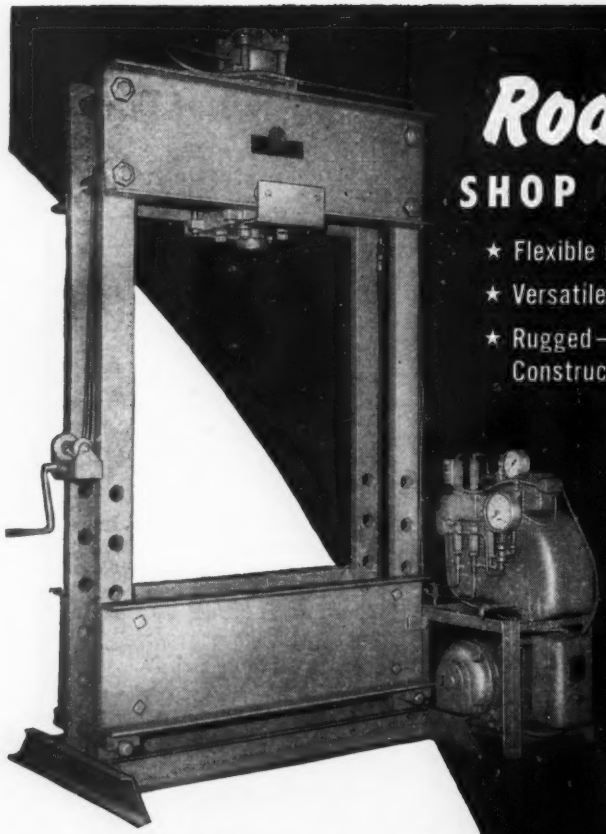
SHOP PRESSES

★ Flexible in Performance
★ Versatile in Use
★ Rugged—Durable in Construction



Illustrated (left) is the Rodgers 150 ton Stationary Shop Press with extra height, equipped with 2-way Travel Cylinder and "D" Pump with 4-way Valve Arrangement.

For tough service and maintenance work in pressing, squeezing and forcing, there is a Rodgers Press to meet your requirements. These rugged, flexible shop presses are available in 60, 100, 150 and 200 ton sizes. (300 and 400 ton capacity presses are available upon special order). They all embody the same proved Rodgers design and performance features: Bolster of press is raised and lowered by a hand crank . . . special alloy steel pins can be adjusted to allow desired opening . . . cylinders may be had with one way travel or two way travel in ram travel lengths from 6" to 14" as desired—frame construction is of strong, durable rolled steel plate. Power is supplied by self-lubricating hand pumps or power driven pumps.

Save time and labor on your jobs with a Rodgers Shop Press—the exact model that is best suited for your needs. You'll get prompt delivery on any standard model press.

The Rodgers "Sixty"—60 ton Shop Press (shown above) takes care of those miscellaneous jobs that waste so much time and labor. Available with hand operated pumps, or with gear head motor drive, also powered with "D" pump power unit.

✻ *Send for this catalog giving complete descriptions, illustrations and specifications of Rodgers Shop Presses. There's no obligation. Write today for your copy.*

Rodgers 100-ton Stationary Shop Press, powered with 4-Speed Hand Operated Hydraulic Pump, also available with "D" pump power unit. Please note that on all presses the cylinder is movable across the entire width of press.

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Shop Presses · Crawler-Track Presses · Power Pump Units · Portable Presses

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Write, wire or phone for complete information on models, prices and optional equipment.

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COMPACT! POWERFUL! SAFE! Only eight parts, all of high-grade electric steel: machined and assembled without keys or set screws. No amount of man power will ever break a Beebe Hoist.

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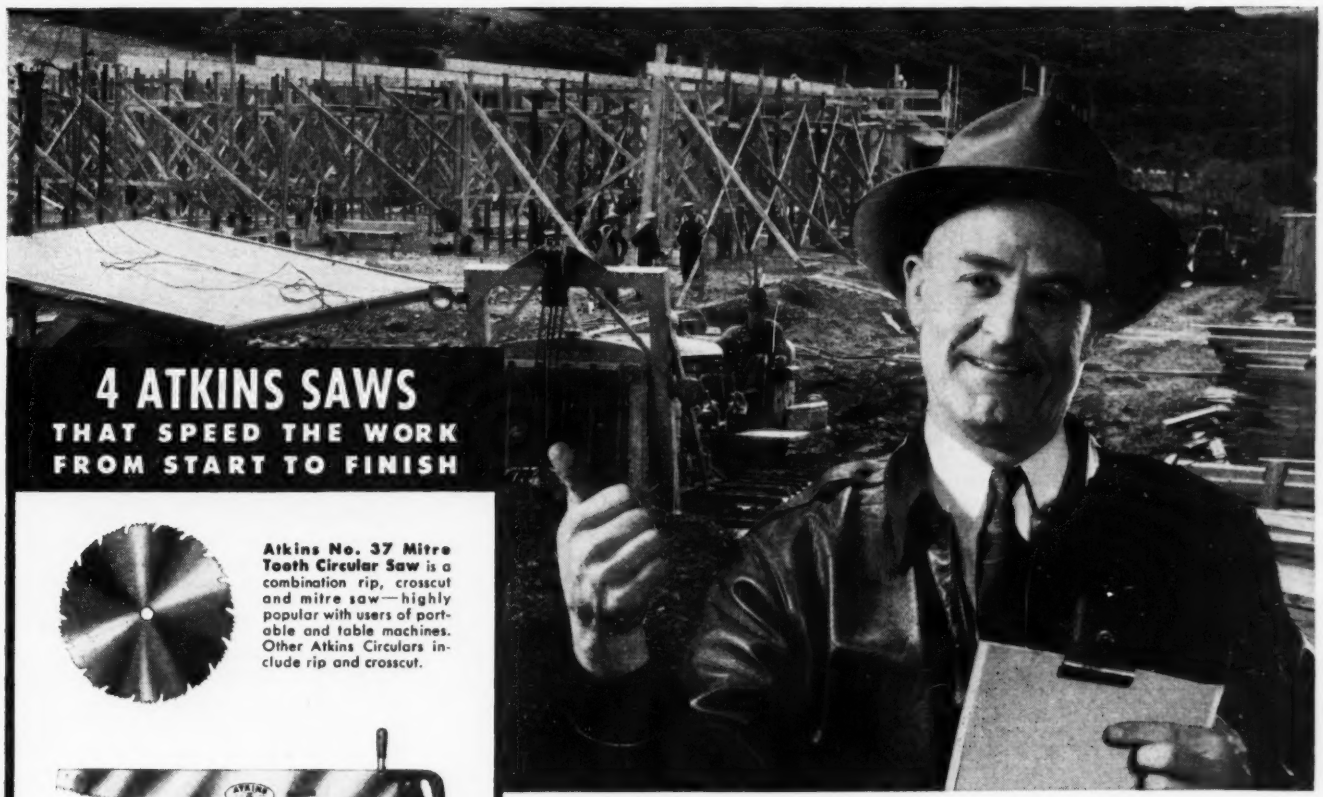

4 ATKINS SAWS
THAT SPEED THE WORK FROM START TO FINISH

Atkins No. 37 Mitre Tooth Circular Saw is a combination rip, crosscut and mitre saw—highly popular with users of portable and table machines. Other Atkins Circulars include rip and crosscut.

No. 390 One-Man Crosscut. Taper ground, clears easily, runs fast. Tuttle tooth, straight back blade is hardened and tempered. Needs very little set. Hardwood handle with large grip. Filed and set, ready for use.

Atkins No. 3000 Handsaw. The latest addition to the Atkins line of handsaws for every use. Has new "Perfect-Grip" Plastic Handle that brings grip closer to the blade and gravity center. Light but stiff "Silver Steel" blade, true taper ground. Straight back, ship point.

Atkins No. 10 Easy Grip Hack Saw Frame. Black rubber handle gives complete control of the stroke, protects hands. Cold-rolled rust-resisting steel frame adjustable 8 to 12 inches. Atkins "Blue End" Hacksaw Blades are tough, fast-cutting, long-lasting.

Yes, it's true; Atkins Saws keep construction sawing costs where they belong — down at sub-basement level.

For every sawing job there's a particular Atkins Saw that cuts faster, easier, cleaner — that represents all the skill, knowledge and improvement gained in 92 years of saw-making experience. Because of the characteristics of Atkins "Silver Steel", these saws stay sharp longer and last longer. When the pressure is on and the backlog high, you can count upon those extra-keen teeth to keep cutting smoothly for record periods. All this adds up to these important factors on your ledger sheets: lower labor costs, less time out for sharpening, greater cutting output.

Invest on the profit side of the ledger. *Check with your industrial distributor now on the Atkins Saws you need.*

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"ATKINS ALWAYS AHEAD"

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Branch Factory: **Portland, Oregon** ***Branch Offices:*** **Atlanta • Chicago • New Orleans • New York • San Francisco**

MAKERS OF BETTER SAWS FOR EVERY CUTTING JOB

Those Small Jobs Go Easier - - - and Faster with

SYNTRON

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Portable

ELECTRIC TOOLS

—drilling, cutting, chipping and scaling concrete and masonry—with Electric Hammers.

—drilling, sanding, buffing and polishing wood and metal—with Electric Drills and Sanders.

—grinding welds, snagging castings and wire brush work—with Electric Grinders.

Sturdily constructed, high quality tools—available in a variety of models, styles and capacities.

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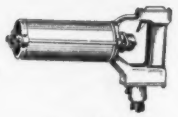

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ELECTRIC DRILLS

GRINDERS

SANDERS

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Operator Taylor has a good reason to relax. He is Finegrading with his Allis-Chalmers equipped with Roadgrader Gauges. The Gauges are fully adjustable and fit all standard makes of Graders. For further information write to:

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C.M.

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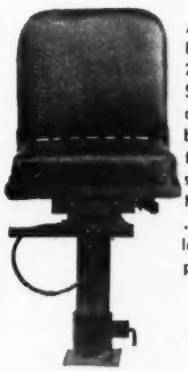
Featuring Additional Products, Specialties & Services for the Construction Industry

FULL VIEW . . . JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.



All metal . . . can be raised from 19" to 28" by hand lever. Seat moves forward or backward. Chair bolts down tight. Built for government . . . stands hard service. Now selling at . . . far below the price of production. **$15**

WEIL'S
20 South 2nd St.
Phila. 6, Pa.

FOR SALE
USED TRUCK TYPE CONCRETE MIXERS

4—Jaeger side discharge truck type concrete mixers.

Capacity 3½ cubic yards.

Mixers are of the closed revolving drum type arranged to discharge on left side of mixer, with an auxiliary 6'0" discharge chute.

Driven by gasoline engine, equipped with electric starter.

150 gallon capacity water tank, divided into two compartments.

The following spare parts will also be furnished:
2—#16122-12 (Comp.) Assembly with rings.
4—#16293-11 Rubber Discs.
1—#D-2 22675-1 Charge Door Plate.
5—#16044-48 Rubber Valve Washers.

Above mixers are in good condition and are properly packed and stored and may be inspected at the Charlestown Yard, of the Metropolitan Transit Authority, 21 Arlington Avenue, Charlestown, Mass.

See: Mr. J. B. Flaherty, Supervisor of Yards and Stores—or—Mr. J. F. Callahan, Supervisor of Surface Track Maintenance.

Sealed bids will be received at the office of the Purchasing Agent, Mr. Forrest W. Carroll, Purchasing Agent, Metropolitan Transit Authority, Room 1032, Park Square Building, Boston, Massachusetts, not later than Thursday, May 27, 1948.

COMPLETE
WELL POINT SYSTEMS
WILL DRY UP ANY EXCAVATION

Faster—More Economically

Write For Job Estimate and 32 page Catalog

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Branch: Third Avenue & Adams St., Gary, Indiana
Telephone: Gary 23983

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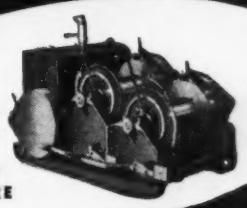

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CONTINENTAL RED SEAL INDUSTRIAL ENGINES

90 BHP **2200 RPM**

New, closed power utility unit, 6 cyl., 4 cyc., electric starting, gasoline propulsion.

Lowest Competitive Price

ASSOCIATED PRINCIPALS
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PL. 7-0675

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SWITCH TO BUMPER
3,000 TONS
105# DUDLEY RELAY RAIL & BARS
FOR AT ONCE SHIPMENT

MORRISON RAILWAY SUPPLY CORP.

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EMPIRE BLDG. BIRMINGHAM 3, ALA.

WIRE ROPE CUTTER

CAPACITY — 1½"
PRICE — $27.50
Write for Bulletin D

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and Company, Inc.
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Address to office nearest you
NEW YORK: 330 *W. 42nd St.* (18)
CHICAGO: 520 *N. Michigan Ave.* (11)
SAN FRANCISCO: 68 *Post St.* (4)

EMPLOYMENT SERVICE

ENGINEERS: LARGE college offers $3000 approximately half time teaching-studying. Positions of all ranks for masters $4000-10,000. Cline Teachers Agency, East Lansing, Mich.

PROFESSIONAL SERVICES

Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

"Opportunity" Advertising:
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"SEARCHLIGHT"
First

LANCASTER, ALLWINE & ROMMEL
Registered Patent Attorneys

Patent Practice before U.S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request.

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DRIVE CHAINS FROM STOCK

For all makes Draglines, Shovels, Ditchers, Pavers, and other chain driven construction machinery.

Catalog and chain size comparative chart furnished on request.

TURNER CHAIN & BELTING CO.
2913 Canton St., Dallas 1, Texas
Telephone Riverside 8761

RENT A THOMAS HOIST

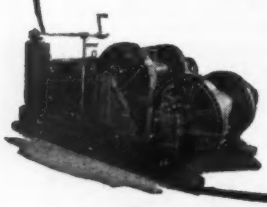
For Your Building Jobs
Direct From the Manufacturer

Since 1873, Thomas-built hoists have been designed for dependable, economical service.

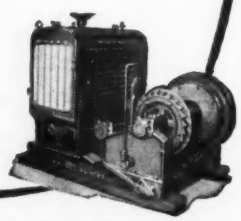
NOW AVAILABLE — IN STOCK

The Thomas patented "Band Friction" grips positively, releases easily—ELIMINATES OPERATOR FATIGUE. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. QUICKLY INTERCHANGEABLE PARTS, and PROMPT, DEPENDABLE SERVICE means Thomas Hoists Keep the Job Going. One, two or three drum hoists up to 100 H.P. gasoline or electric powered.

Write NOW for NEW FOLDER No. 101 showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.

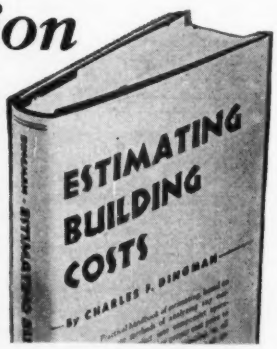


THOMAS HOIST CO.
22 S. HOYNE AVENUE
PHONE SEELEY 0303
CHICAGO 12, ILL.



Get set for profitable building construction

--make every bid count!



Put this handy Dingman pocketbook to work, in making accurate estimates for building construction, in saving time and error in the job of determining profitable, competitive prices. Based on the most practical experience, it is full of helpful pointers for new or experienced estimators, shows how to determine quantities of labor and amounts of material to produce a unit of completed work in practically every branch of building construction.

ESTIMATING BUILDING COSTS

By CHARLES F. DINGMAN Architectural Engineer

Third Edition, 401 pages, 4 x 6¼, 27 illustrations, $3.50

This practical guidebook of estimating trains the estimator to analyze every construction job into its component parts, to apply cost data, adjusted to living conditions, to the several operations necessary, and to calculate a price that will approach the actual cost of doing the work as closely as is humanly possible.

ESTIMATING BUILDING COSTS tells how to make an estimate on a wood, brick, or concrete building construction, and covers every operation from excavating to roofing and waterproofing —with valuable material on such important details as fireproof construction, shingling, steel sash, or cement gun work. Included also are a number of useful data tables, but its primary purpose is to give the step-by-step methods that will train the reader to become a thoroughly competent estimator. This book helps you to make sure that no element of the work is overlooked, and explains the special factors to watch in dealing with each type of work.

While essentially a book of methods, ESTIMATING BUILDING COSTS contains 227 data tables and other useful reference features for the estimator, such as a reminder list of job elements, and a number of practical mathematical formulas.

Practical features

- Covers earth handling and moving so fully that the data are applicable to building operations of practically any scope and size, also to other construction operations involving this work
- Contains extensively rewritten and expanded sections on handling and finishing concrete
- Includes chapters on estimating plumbing and heating, useful both to the general contractor and to the specialist in these fields.

SEND THIS McGRAW-HILL COUPON

McGraw-Hill Book Co., 330 W. 42nd St., N. Y. 18
Send me Dingman's ESTIMATING BUILDING COSTS for 10 days' examination on approval. In 10 days I will send $3.50, plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

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Address .....
City and State .....
Company .....
Position CM-5-48

($4.20 in Canada; order from McGraw Hill Co. of Canada Ltd., 12 Richmond St. E., Toronto 1)

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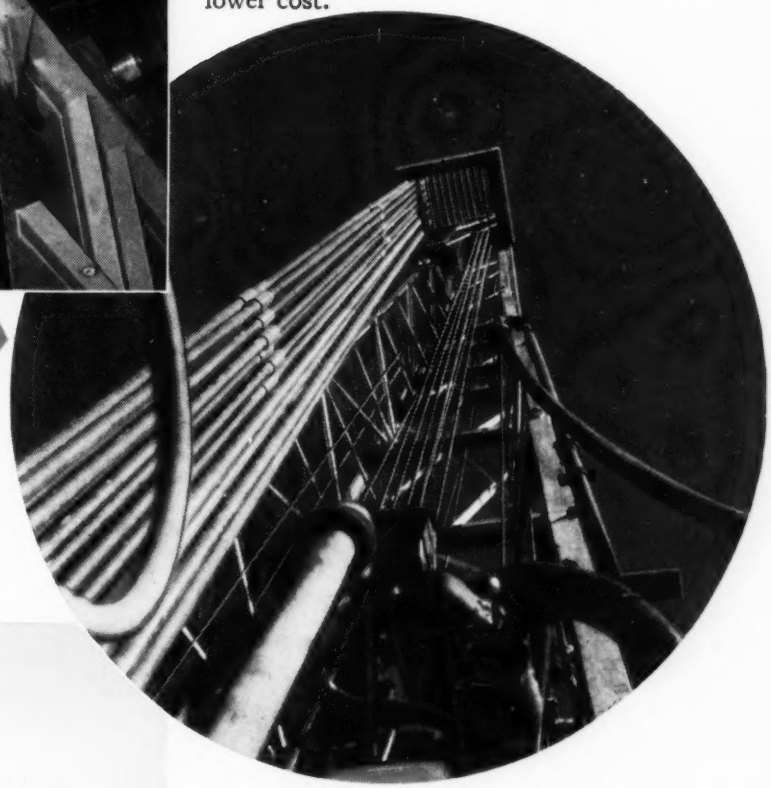
Improved Performance with LAY-SET PREFORMED

For heavy or light loads on overhead traveling cranes Hazard LAY-SET Preformed wire rope improves performance. Why? Because it operates smoothly over sheaves and drums . . . it spools evenly. It's relaxed, easy to handle. LAY-SET Preformed means longer life and lower cost.



Rotary oil well drilling requires a wire rope of the absolute best construction and grade. For years Hazard has furnished LAY-SET Preformed in 6 x 19 Seale construction, made of improved plow steel wires and with an independent wire rope center, for rotary drilling. The bigger outer wires wear longer, the center adds strength, and the preforming means better spooling on the drum.

Get up close to a shovel. Watch the bucket quiver and jerk as it is filled. Watch the lines rubbing against each other. Watch them bend by the hour around small sheaves. You'll see the reasons why LAY-SET Preformed 6 x 19 filler wire Lang-lay improved plow steel with independent wire rope center is needed for improved performance.

In the oil and logging fields, in marine, elevator, industrial, contracting, mining service there are correct constructions of Hazard LAY-SET Preformed for every wire rope use.

Specify LAY-SET Preformed next time.

ACCO *In Business for Your Safety*

TRADE MARK

HAZARD WIRE ROPE

A DIVISION OF AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Seattle, Bridgeport, Conn.

WHEN A BLUE BRUTE PAVER SET THE PACE...

A Blue Brute 34E "Dual Drum" Paver on U. S. Route 422, in 1947, showing the "live" boom-and-bucket in action.

The same Paver in October, 1946, pouring concrete on Route 1, near Newark, N. J.

No paving job moves faster than the pace set by its paver. That's why S. J. Groves & Sons Co. selected Ransome Blue Brute 34E Dual Drum Pavers for jobs where fast performance was a "must".

Speed counted on the new 3-lane U.S. 422 between New Castle, Pa., and Youngstown, Ohio, delayed by abnormally heavy rains and lack of skilled manpower. Here a Ransome Blue Brute 34E Dual Drum Paver set the remarkable pace of ½ mile per day. This was the very same Blue Brute, incidentally, that performed a rush job the year before on U. S. 1 near the Newark, N. J. Airport. Here, fast-growing traffic demanded a tremendous widening project in a hurry.

That's where the 34E's many advanced features proved themselves. For example: *the fool-proof, self-cleaning, fast-charging skip . . . mechanically operated batchmeter for all-weather accuracy . . . precision water-measuring . . . and the exclusive, hydraulically operated "live" boom-and-bucket combination that spreads as it swings, cutting down costly hand shovelling.*

Geared to the output of the Blue Brute Paver, these large-scale paving operations were carried out smoothly . . . economically . . . on time! And that's why a Ransome 34E, Single or Dual Drum, on your own construction jobs will lay more yardage . . . more accurately and with less manpower ...than any other paver. For full details, see your nearby Worthington-Ransome Distributor, or write for Bulletin 208.

R8-5

KNOW YOUR

BLUE BRUTES

Your Blue Brute Distributor will be glad to show you how Worthington-Ransome construction equipment will put your jobs on a profitable basis.

RANSOME EQUIPMENT

Pavers, Portable and Stationary Mixers, Truck Mixers, and Accessories.

WORTHINGTON EQUIPMENT

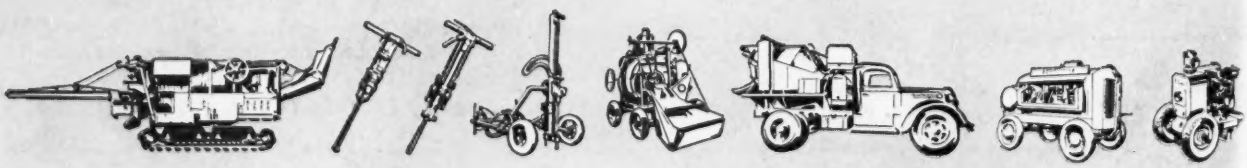
Gasoline and Diesel Driven Portable Compressors, Rock Drills, Air Tools, Self-Priming Centrifugal Pumps and Accessories.

WORTHINGTON

Worthington Pump and Machinery Corporation, Worthington-Ransome Construction Equipment Division, Holyoke, Mass.

Distributors in all principal cities

BUY BLUE BRUTES



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB